

PIPER APACHE N1231P NORMAL CHECKLIST

BEFORE START CHECK

PRE-FLIGHT ----- COMPLETE
WEIGHT & BALANCE ----- COMPLETE
CABIN DOORS ----- CLOSED & LATCHED
PASSENGER BRIEF ----- COMPLETE
SEATBELTS/HARNESSES ----- ADJUSTED/LOCKED
CIRCUIT BREAKERS ----- CHECKED
FUEL SELECTORS ----- MAIN
CROSS FEED ----- OFF
LANDING GEAR HANDLE ----- CENTERED
ELECTRICAL EQUIPMENT ----- OFF
MASTER SWITCH ----- ON
FUEL GAUGES ----- CHECKED
BEACON ----- ON
LANDING GEAR POSITION LIGHTS ----- 3 GREEN

ENGINE START CHECK

ALTERNATORS ----- ON
MIXTURE CONTROLS ----- FULL RICH
PROPELLERS ----- FULL FORWARD
THROTTLES ----- OPEN 1/8 INCH
FUEL PUMP ----- BOTH ON (UNTILL FUEL **PRESS** THEN) OFF
BRAKES ----- SET & HOLD
PROP AREA ----- CLEAR

MAGNETO SWITCHES ----- ALL 4 ON

PRIME ----- AS REQUIRED
STARTER ----- ENGAGE, 5S MAX
OIL PRESSURE ----- CHECK INCREASING/GREEN 30s
MIXTURE ----- GROUND LEAN
AMMETER ----- CHARGING

REPEAT 2nd ENGINE

TAXI CHECK

FLAPS ----- UP
AVIONICS MASTER/AVIONICS ----- ON
BRAKES ----- CHECK AFTER ROLLING
DG/TURN-COORDINATOR ----- CHECK DURING TAXI

ENGINE RUN UP

BRAKES ----- SET & HOLD
FLIGHT CONTROLS ----- FREE & CORRECT
TRIM ----- TAKEOFF
MIXTURE CONTROL ----- FULL RICH
PROPELLERS ----- FULL FORWARD

THROTTLE (1 AT A TIME) ----- 2000RPM
PROPELLER CYCLE X3 ----- CHECK
OIL PRESSURE / TEMP ----- CHECK
SUCTION ----- 5 INCHES (RIGHT ENGINE ONLY)
CARB HEAT ----- CHECK
MAGNETOS ----- 125 MAX, 50 DIFFERENCE
AMMETER ----- CHARGING
THROTTLE ----- <1000 RPM

REPEAT 2nd ENGINE

FLIGHT INSTRUMENTS, RADIOS, FUEL Totalizers ----- SET

PIPER APACHE N1231P NORMAL CHECKLIST

BEFORE TAKEOFF CHECK

FUEL SELECTORS/PRIMERS/CROSSFEED ----- SET
FLAPS ----- UP
MIXTURES ----- FULL RICH
PROPELLERS ----- FULL FORWARD (R, slightly back)
TRANSPONDER ----- ALT
CABIN HEATER ----- OFF
LANDING LIGHT ----- ON
FUEL PUMPS ----- ON
PARKING BRAKE ----- OFF
TAKEOFF/DEPARTURE BRIEF ----- COMPLETE

TAKEOFF

MIXTURE/PROPS ----- FULL FORWARD (R slightly back)
THROTTLES ----- FULL POWER
ROTATE ----- 85
LANDING GEAR ----- (Positive ROC/No Runway Remain) GEAR UP

CLIMB CHECK (1000FT AGL)

THROTTLES/PROPS ----- 24" MP, 2400RPM
AIRSPEED (Cruise Climb) ----- 120MPH
MIXTURES ----- LEAN ABOVE 3,000 FT
ENGINE GAUGES ----- CHECK GREEN
FUEL PUMPS ----- OFF
LANDING LIGHT ----- OFF

CRUISE CHECK

THROTTLES ----- 18"-24"
PROPELLERS ----- 2400RPM
MIXTURES ----- LEAN ABOVE 3,000 FT
FUEL PUMPS ----- OFF

DESCENT CHECK

WEATHER / ALTIMETER ----- CHECKED / SET
MIXTURES ----- ENRICH
CARB HEAT / POWER ----- AS NEEDED

BEFORE LANDING CHECK

SEATBELTS / HARNESSSES ----- SET
CABIN HEATER ----- OFF
FUEL SELECTORS and CROSS FEED ----- MAINS and OFF
LANDING GEAR ----- DOWN (BELOW 125)
FLAPS ----- SET
MIXTURES ----- FULL RICH
PROPELLERS ----- FULL FORWARD (R, slightly back)
LANDING LIGHT ----- ON
FUEL PUMPS ----- ON

AFTER LANDING CHECK

FLAPS ----- UP
MIXTURE ----- GROUND LEAN
LANDING LIGHT ----- OFF
FUEL PUMPS ----- OFF
TRIM ----- TAKEOFF

SHUTDOWN CHECK

AVIONIC MASTERS, ELECTRICAL SWITCHES ----- OFF
THROTTLES ----- ~1000 RPM
MIXTURES ----- IDLE CUTOFF
MAGNETOS and MASTER SWITCH ----- OFF

PIPER APACHE N1231P EMERGENCY CHECKLIST

ENGINE FIRE (GROUND)

MIXTURE CONTROLS ----- IDLE CUTOFF
CONTINUE CRANKING AFFECTED ENGINE
 FUEL SELECTORS----- OFF
 FUEL PUMPS----- OFF
 MASTER SWITCH ----- OFF

ENGINE FAILURE DURING GROUND ROLL

THROTTLES----- IDLE
 BRAKES----- AS NEEDED
 MIXTURES----- IDLE CUTOFF IF SUSPECT FIRE

ENGINE FIRE INFLIGHT, OR PRECAUTIONARY SHUTDOWN

FUEL SELECTOR (AFFECTED ENGINE)----- OFF
 CROSSFEED ----- OFF
 PRIMERS----- IN and LOCKED
 MIXTURE (AFFECTED ENGINE) ----- OFF
 PROPELLER (AFFECTED ENGINE) ----- FEATHER
 FUEL PUMP (AFFECTED ENGINE)----- OFF
 MAGNETOS (AFFECTED ENGINE)----- OFF(1 BY 1)

MANUAL GEAR EXTENSION

GEAR HANDLE----- DOWN
 HAND PUMP----- PULL OUT & PUMP
(40-50 PUMPS FOR GEAR OPERATION)

CO₂ GEAR EXTENSION

GEAR HANDLE----- DOWN
 CO₂ GEAR EXTENSION RING ----- PULL
****WARNING DO NOT TRY TO RETRACT THE GEAR AFTER CO₂ EMERGENCY EXTENSION IS USED****

AIRSPEEDS FOR SAFE OPERATION (MPH)

V _{SO} ----- 56	V _Y ----- 95-105
V _{S1} ----- 62	V _{FE} ----- 100
V _R ----- 85	V _{LE} ----- 125
V _{MC} ----- 85	V _A ----- 130
V _X ----- 87	V _{NO} ----- 190
V _{YSE} ----- 102	V _{NE} ----- 217
APPROACH-- 85-90	ENRTE CLIMB--- 120

PIPER APACHE N1231P EMERGENCY CHECKLIST

ENGINE FAILURE

MIXTURES / PROPS / THROTTLES----- FULL FORWARD
 CLEAN-UP----- FLAPS/GEAR UP, FUEL PUMPS ON
 IDENTIFY ----- DEAD FOOT, DEAD ENGINE
 VERIFY ----- THROTTLE OF AFFECTED ENGINE

BELOW ~1000 AGL? ----- FEATHER DEAD ENGINE
IN TRAINING, SET SIM FEATHER (10")
DECLARE EMERGENCY, LAND LONG RUNWAY

ABOVE ~1000 AGL? ----- ATTEMPT TO FIX DEAD ENGINE
 FUEL SELECTORS----- FULLEST TANKS
 CROSSFEED----- ON
 PRIMERS ----- IN and LOCKED
 CARB HEAT ----- AS NEEDED
 MAGNETOS ----- ON
 RESTART ----- ATTEMPT IF PROP NOT TURNING
IF RESTART FAILS, THEN SECURE(FEATHER)

ENGINE SECURE (FEATHER)

IDENTIFY ----- DEAD FOOT, DEAD ENGINE
 VERIFY ----- THROTTLE OF AFFECTED ENGINE
 PROPELLER (**AFFECTED** ENGINE)----- FEATHER
 MIXTURE (**AFFECTED** ENGINE) ----- CUTOFF
 FUEL PUMP (**AFFECTED** ENGINE) ----- OFF
 MAGNETOS (**AFFECTED** ENGINE)----- OFF(1 BY 1)
 FUEL SELECTOR (**AFFECTED** ENGINE)----- OFF
 CROSSFEED----- OFF

ENGINE RESTART

MAGNETOS ----- ON
 FUEL SELECTORS----- FULLEST TANK
 CROSSFEED----- OFF
 MIXTURE----- FULL RICH
 PROPELLER ----- FULL FORWARD
 AIRSPEED(WHILE PRIMING)----- **>120**
 THROTTLE ----- 3 PUMPS/PRIME, IDLE
 STARTER (AFFECTED ENGINE) ----- ENGAGE
 POWER ----- 11" UNTIL CHT ABOVE 200

PIPER APACHE N1231P MANEUVERS

STEEP TURNS

CLEARING TURNS----- DONE
 PUMPS, LIGHTS, FUEL----- CONFIGURED
 THROTTLE----- ~16"-17" MP
 PROPS-----2400 RPM
 AIRSPEED----- 115-120 MPH
 THROTTLE----- ADD APPROX 2" DURING TURN
CRUISE CONFIG

POWER OFF STALL

CLEAR, PUMPS, LIGHTS, FUEL----- DONE/SET
 THROTTLE-----~13" MP
 MIXTURES, PROPS----- FULL FORWARD(R prop ~back)
 AIRSPEED----- <125 MPH
 GEAR----- DOWN
 AIRSPEED----- <100 MPH
 FLAPS-----HALF, then FULL
 THROTTLE----- IDLE
 STABILIZED DESCENT----- 85-90 MPH
 PITCH TO STALL (OR FIRST INDICATION IF COMMERCIAL)

RECOVERY----- **REDUCE AOA**
 THROTTLE----- FULL POWER
 PITCH----- CLIMB(Target V_y)
 FLAPS TO 1/2, POSITIVE ROC, GEAR UP, FLAPS TO ZERO
CRUISE CONFIG

POWER ON STALL

CLEAR, PUMPS, LIGHTS, FUEL----- DONE/SET
 THROTTLE-----~13" MP
 MIXTURES, PROPS----- FULL FORWARD(R prop ~back)
 AIRSPEED----- ~90 MPH
 THROTTLE----- 18" MP (SIMULATE FULL POWER)
 PITCH TO STALL (OR FIRST INDICATION IF COMMERCIAL)
RECOVERY----- **REDUCE AOA**
 THROTTLE----- NO CHANGE (ALREADY SIM FULL)
 PITCH----- CLIMB(Target V_y)
CRUISE CONFIG

ACCEL STALL

CLEAR, PUMPS, LIGHTS, FUEL----- DONE/SET
 THROTTLE-----~13" MP
 MIXTURES, PROPS----- FULL FORWARD
 AIRSPEED----- ~100 MPH
 STALL >1G, RECOVER (PITCH, ROLL, POWER), V_y CLIMB
CRUISE CONFIG

SLOW FLIGHT

CLEAR, PUMPS, LIGHTS, FUEL----- DONE/SET
 THROTTLE-----~15" MP
 PROPS-----2400 RPM
 GEAR, THEN FLAPS----- WHEN SPEED ALLOWS
 THROTTLE----- AS NECESSARY (Approx 15")
 AIRSPEED----- 70-75 MPH
CRUISE CONFIG

PIPER APACHE N1231P MANEUVERS

VMC DEMO, >4,000 AGL

CLEAR, PUMPS, LIGHTS, FUEL----- DONE/SET
 FLAPS, GEAR----- UP
 THROTTLES----- ~13" MP
 MIXTURES, PROPS----- FULL FORWARD(R prop ~back)
 AIRSPEED----- ~110 MPH
 LEFT THROTTLE----- SLOWLY CLOSE
HEADING----- MAINTAIN
 AIRSPEED----- V_{YSE}
 RIGHT THROTTLE----- INCREASE TO FULL POWER
 AIRSPEED----- DECREASE AT 1MPH/SECOND
 RECOVER AT FIRST SIGN OF---- LOSS OF DIREC CONTROL,
 ----- STALL INDICATION (WARNING OR BUFFET)
RECOVERY - SIMULTANEOUS----- **REDUCE AOA**
 ----- **REDUCE POWER (approx. 1/2 throttle)**
 RECOVERY----- SPEED INCR., RT THROTTLE FULL
 AIRSPEED----- V_{YSE}
CRUISE CONFIG

DRAG DEMO, SIM FEATHER, >4,000 AGL

CLEARING TURNS----- EXECUTE
 MIXTURES, PROPS----- FULL FORWARD
 FUEL PUMPS----- ON
 THROTTLES----- LEFT IDLE, RIGHT FULL
 AIRSPEED----- V_{YSE}
 VSI =----- A) _____
 EXTEND GEAR, V_{YSE} . VSI =----- B) _____
 EXTEND FLAPS, V_{YSE} . VSI =----- C) _____
 LEFT THROTTLE----- 12" MP(SIM FEATHER)
 VSI =----- D) _____
 FLAPS UP, V_{YSE} . VSI =----- E) _____
 GEAR UP, V_{YSE} . VSI =----- F) _____
 THROTTLES----- BOTH 18" MP
CRUISE CONFIG

Windmill

Sim Feather

DRAG DEMO, ENGINE FEATHERED, >4,000 AGL

CLEARING TURNS----- EXECUTE
 FUEL PUMPS----- ON
 LEFT MIXTURE----- CUTOFF
 POWER UP, CLEAN UP, ID, VERIFY
 AIRSPEED----- V_{YSE}
 VSI =----- U) _____
 EXTEND GEAR, V_{YSE} . VSI =----- V) _____
 EXTEND FLAPS, V_{YSE} . VSI =----- W) _____
 L. ENG, **FEATHER**, then V_{YSE} . VSI =-- X) _____
 FLAPS UP, **HAND PUMP**, V_{YSE} . VSI = Y) _____
 GEAR UP, **HAND PUMP**, V_{YSE} . VSI = Z) _____
 LEFT ENGINE----- RESTART PROCEDURE
CRUISE CONFIG

Feathered Windmill

PREFLIGHT

Cabin

W&B (Dispatch book) ----- Calculate/Check
AROW/AVIATE ----- Checked
Master Switch ----- On
Fuel Quantity ----- Check
Light switches ----- On
Pitot Heat ----- On
Landing Gear Down Lights ----- Check 3 Green
Gear Up, Stall, Gear Unsafe Lights ----- Check
Lights (outside) ----- Verify
Pitot Tube (outside) ----- Check for Warmth
Stall Horn (outside) ----- Check
Switches ----- Off
Flaps ----- Deploy (Remember to Retract After Start)

Cross Feed Fuel System (place bucket under drain)

Right Elec FP ----- On
Cross Feed **Valve** ----- On
Cross Feed **Drain** ----- Open (3s), then Close
Cross Feed **Valve** ----- Off
Right Elec FP ----- Off
----- Right side of Cross Feed is now purged
Left Elec FP ----- On
Cross Feed **Drain** ----- Open(3s), then close
Cross Feed Drain and Valve ----- Confirm both Off/Closed
Left Elec FP ----- Off
Master ----- Off

Fuel

Aux Tanks ----- Check level (wet)
Main Tanks ----- Check
----- Right Main Needs 20+ Gallons (for Rt SE work)
Sump (under wing, inside engine) ----- Drain
----- ****18-20s drain required if switching Main/Aux****

Oil

Engine Oil Level (check both engines) ----- 7-8 qts

Right Wing

Flap ----- Check
Aileron ----- Check
Wing Surface and Leading Edge ----- Check
Wingtip ----- Check
Engine/Cowling/Prop ----- Check
Landing Gear ----- Check

Nose

Baggage Compartment ----- Check screws
Battery Compartment ----- Check screws
Surface ----- Check

Rev 15

Left Wing

Flap ----- Check
Aileron ----- Check
Wing Surface and Leading Edge ----- Check
Wingtip ----- Check
Engine/Cowling/Prop ----- Check
Landing Gear ----- Check
Pitot/Static tube ----- Check

Empennage

HS, VS Surfaces ----- Check
Rudder ----- Check
Rudder Attach bolts ----- Check
Elevator ----- Check
Elevator Attach Bolts ----- Check

Fuselage

Antennae ----- Check
Baggage Door ----- Check

****Optional(Aux Tank Drain)****

Assuming Fuel Selector is on Main:

Fuel Selector ----- Aux
Sump (under wing, inside engine) ----- Drain 18s or more
Fuel Selector ----- Main
----- Use Aux Tank only in S&L flight

Briefing Example

Takeoff: This is a short-field takeoff. Use all available runway. Departing runway 20, it is 2400 feet long. Taxi out, line up with the centerline, apply brakes and 2,000 RPM. Listen for any abnormalities, check engine pressures and temperatures. If everything is acceptable, we will release the brakes, stay on centerline, and apply full power. Rotation speed is 85MPH.

If we have any abnormalities prior to 85, we will chop the throttles and apply brakes. If we have reached 85MPH we will rotate and climb out. Any abnormalities once flying, we will Fly The Plane (Ball/Bank, Rud/Ail/Pitch), pitch for **V_{YSE}**, Power Up, Clean Up, Identify, Verify and if below 1,000 AGL, feather the bad engine if producing no thrust. We will then declare an emergency and land on a long runway (Ex: Hillsboro). Above 1,000 we may attempt a restart/secure then declare/land long runway.

V_R is 85

V_{MC} is 85

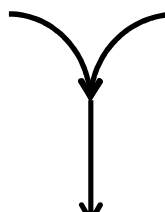
V_{YSE} is 102

V_{EnrouteClimb} is 120

PIPER APACHE N1231P TRAFFIC PATTERN

CROSSWIND or 45° Entry

SPEED ----- ~120MPH
 THROTTLE ----- 16-17" MP
 PROPS ----- 2400
 MIXTURE ----- RICH
C.HEAT ----- As Needed
GEAR ----- DOWN(125)
GUMPS ----- CHECK
 FLAPS ----- UP
FUEL PUMPS ----- ON



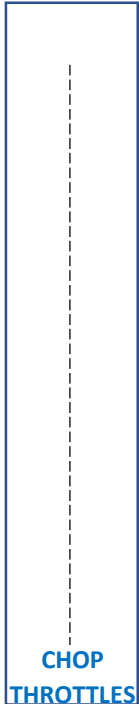
DOWNWIND

SPEED ----- ~110MPH
 THROTTLE ----- 16-17" MP
 PROPS ----- 2400
 MIXTURE ----- RICH
 C.HEAT ----- As Needed
 GEAR ----- DOWN
 GUMPS ----- CHECK
 FLAPS ----- UP



ABEAM

SPEED ----- ~110MPH
THROTTLE --- 12-13" MP
PROPS ----- FWD
 MIXTURE ----- RICH
 C.HEAT ----- As Needed
 GEAR ----- DOWN
GUMPS ----- CHECK
FLAPS ----- 1/2(100)**



AFTER LANDING

LIGHTS ----- OFF
 FLAPS ----- UP
 F. PUMPS ----- OFF
 TRIM ----- SET
 MIXTURE ----- LEAN

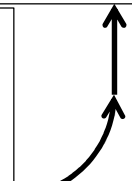
FINAL

SPEED (NUMBERS) 80MPH
-----90(HALF), 102(OEI)
 THROTTLE ----- 12-13" MP
 PROPS ----- FWD
 MIXTURE ----- RICH
 C.HEAT ----- As Needed
 GEAR ----- DOWN
GUMPS ----- CHECK
FLAPS ----- FULL**



45°

SPEED ----- ~95MPH
 THROTTLE ----- 12-13" MP
 PROPS ----- FWD
 MIXTURE ----- RICH
 C.HEAT ----- As Needed
 GEAR ----- DOWN
GUMPS ----- CHECK
 FLAPS ----- 1/2**



**FLAPS

SHORT FIELD ----- FULL
 NORMAL ----- HALF
 SINGLE ENGINE -- NONE