PA28RT-201 Profiles (Tru-Trak Autopilot)

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NORMAL OPERATIONS

Perform Flows then verify with Checklists

Engine Starting, Taxiing, Ground Operations

Use of all available equipment & checklists

TRAFFIC PATTERNS (Verify pattern altitude & fly the Established Traffic Pattern for that airport (91.127)

Enter 45 degree angle to the downwind leg

Depart the traffic pattern straight-out, or make a turn to the left (or right, if right traffic pattern.)

First climbing turn within 300' of pattern altitude

NORMAL TAKEOFFS

Cleared For Takeoff – Fuel Pump ON - Landing Light ON Flaps 10 or as desired

Full Power Accelerate 65-75 KIAS Rotate to Climb Attitude

Climb Initially at 76 – 87KIAS Positive Rate Gear Up TRIM

Accelerate to 90 Flaps Up Landing Light OFF

At 400 AGL Climb Power – Initially **24**" MAP **2500* RPM TRIM** * *MAP will increase to 25" after Prop is Set*

Fuel Pump – OFF unless remaining in pattern

When 300 Below Pattern Altitude Turn on Course

At Pattern Altitude Power **20**" Propeller **2200**** **RPM** * *MAP will increase to 22" after Prop is Set*

TRIM for level flight

NORMAL APPROACHES AND LANDINGS

When Cleared, (Or before entering pattern) Landing Light ON, Fuel Pump ON

Abeam Numbers **17**" **MAP**, Gear Down, 10 Degrees Flaps, Prop Full-Forward, TRIM 95-100 KIAS

Turn Base 20 Degrees Flaps slow to 90 KIAS TRIM

Turn Final Full Flaps slow to 80 KIAS TRIM

GUMPS - Gas, Undercarriage, Mixture, Prop, Switches

Pitch Controls Airspeed, Power Controls Altitude

Maintain Airspeed Within +5 Kts -0 Kts.

SHORT FIELD LANDING

Abeam Numbers Gear Down, 17" MAP, 10 Degrees Flaps, Trim, 95-100 KIAS; Landing Light ON, Fuel Pump ON

Turn Base 20 Degrees Flaps 90 KIAS

Final Full Flaps **80KIAS (75 Short Final)** Airspeed +5 Kts -0 Kts.

GUMPS - Gas, Undercarriage, Mixture, Prop, Switches

Touchdown within 200'

Apply brakes & retract flaps

FORWARD SLIPS TO LANDING (No Crosswind)

Landing Light ON, Fuel Pump ON; Gear Down, Full Right Rudder & Opposite Aileron To Maintain Ground Track

Maintain Approach Speed Within 5 Kts.

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SIDE SLIPS TO LANDING (Crosswind)

Abeam Numbers Gear Down, 17" MAP, 10 Degrees Flaps, Trim, 95-100 KIAS; Landing Light ON, Fuel Pump ON

Enough Right (Or Left) Rudder To Line Up With Runway

Opposite Aileron To Control Drift

Maintain Approach Speed Within 5 Kts.

SOFT FIELD LANDING

Consider Wind, Surface and Obstructions

Abeam Numbers Gear Down, 17" MAP, 10 Degrees Flaps, Trim, 95-100 KIAS; Landing Light ON, Fuel Pump ON

Turn Base 20 Degrees Flaps 90 KIAS

Turn Final Full Flaps 80 KIAS

GUMPS - Gas, Undercarriage, Mixture, Prop, Switches

Pitch Controls Airspeed, Power Controls Altitude

Airspeed +5 Kts -0 Kts.

Add 1-3" MAP Just Before Touchdown

Apply Back-Elevator Pressure During Touchdown

Avoid using brakes as much as possible, keep rolling

SHORT FIELD TAKEOFF / SOFT FIELD TAKEOFF

Flaps 25 degrees (Second Notch)

Start at the beginning of the Runway

Apply Brakes, Add Full Power

Release Brakes, Accelerate **55 – 60 KIAS then Rotate to Climb Attitude.**

After breaking ground, accelerate to 55 to 65 KIAS, depending on aircraft weight and select gear up.

Continue to climb while accelerating to the flaps-up rate of climb speed: **87 KIAS** if no obstacle is present, or **77 KIAS if obstacle** clearance is a consideration.

Slowly retract the flaps while climbing out.

MANEUVERING DURING SLOW FLIGHT

Maintain Altitude & Heading Clearing Turns 16" MAP Prop Forward Full Flaps Power As Required (Typically 18-21" MAP) Right Rudder, & Trim Maintain Altitude Within 100' and Heading Within 10 Degrees Airspeed Within +5, -0 Kts. Heading Within 10 Degrees

STEEP TURNS

Clear the area Speed at or Below Va Passing 30 Degrees Increase back pressure Bank 45 Degrees, Within 10 Degrees, Maintain Altitude Roll-Out On Heading, Within 10 degrees Maintain Altitude Within 100' Airspeed Within 10 Kts.

IMMINENT OR FULL STALLS (Power Off Landing Configuration)

Clear the area

16" MAP Prop Forward

Full Flaps, Close Throttle

Increase Pitch To Stall, or Imminent Stall

Apply Climb Power or as required, Reduce Pitch

Retract Flaps Half Way

Pitch To Vx.

Positive Rate of Climb, Retract Flaps Slowly

Climb at Vy

Maintain Within 10 Degrees of Desired Heading, or Within 10 Degrees of a 20 Degree Bank Turn

IMMINENT OR FULL STALLS (POWER ON)

Clear The Area

Reduce Power To Establish Takeoff Speed

Prop Forward Cowl Flaps Open

Throttle 16" MAP (Depending on OAT to limit excessive Pitchup Attitude)

Right Rudder maintain coordinated flight

Increase Pitch To Stall

Relax Pitch To Break Stall, Level Wings

Climb Vx Initially then accelerate to Vy

Maintain Heading Within 10 Degrees, Or Bank Angle Within 10 Degrees of a 20 Degree Bank, If Entering The Stall In A Turn

LOST PROCEDURES

Maintain Appropriate Heading Re-Check Calculations Climb To Identify Prominent Landmarks Locate Position Using Cross-Radials Tune, Identify, And Proceed To VOR Contact Radar Facility, Request Vectors To Destination Use Nearest Function on GPS

EMERGENCY APPROACH AND LANDING

Trim Best Glide Speed. (79 KTS@FULL GROSS 72 @ 2300)
Turn Left And Right, Look For Suitable Area
Proceed To Area.
Prop Lowest RPM - - - Fuel Pump ON - - - Alternate Air Open
Check Fuel Selector, attempt a restart if time permits
Arrive Abeam The Touchdown Spot, 1000' AGL
Proceed With Power Off Approach And Landing

Maintain Airspeed within 10 Kts.

GO-AROUND

Mixture Full Rich or as required Prop Forward Climb Power or as required Establish Pitch For Vy. Positive Rate – Gear UP

Retract Flaps Half-Way

Climb Vy, Trim

Retract Flaps Slowly

Fly Appropriate Pattern

Maintain Airspeed Within 10 Kts.

UNUSUAL FLIGHT ATTITUDES

Airspeed Needle Increasing:

Close Throttle.

Level Wings.

Increase Pitch.

UNUSUAL FLIGHT ATTITUDES

Airspeed Needle Decreasing:

Full Throttle.

Decrease Pitch.

Level Wings.

CONSTANT AIRSPEED CLIMBS AND DESCENTS Adjust Pitch And Power Simultaneously

VOR INTERCEPTION AND TRACKING FROM STATION Tune and Identify VOR Facility

Tune and identity VOR Facility

Rotate OBS To Desired Radial

Obtain FROM Indication With Needle Centered

Turn Toward Top Of CDI Course To Intercept 30 - 45 Degrees

VOR INTERCEPTION AND TRACKING TO STATION

Tune and Identify VOR Facility. Rotate OBS To Obtain A TO Indication With Needle Centered. Turn Toward CDI Course Indication. Fly The Needle

TRU-TRAK AUTOPILOT From Abbreviated Page

SYNC (Before Engaging):

1- Switch A/P On

2- Presses and release the ALT button TWICE.

3- Rotate the KNOB to set the altimeter to the aircraft altimeter reading then momentarily press and release the KNOB.

ENGAGE: The autopilot can be engaged in one of two ways: 1) Using the **AP LEVEL** button. **Blue Button**

2) Momentarily press and release the **KNOB** on the autopilot face; Ground track and vertical speed.

NAV: Press MODE.

VS: Press then rotate KNOB.

ALT HOLD: Press ALT then press KNOB.

ALT SELECT: Press ALT, rotate KNOB, press KNOB, select VS press KNOB.

ADJUST VERTICAL SPEED and ALTITUDE:

Press KNOB Once (VS) Twice (SEL altitude).

ALTITUDE PRE-SELECT MODE:

Autopilot Disengaged, press ALT rotate KNOB to select the target altitude, press and release KNOB.

TRU-TRAK AUTOPILOT From Operator Manual

Sync the altimeter as part of pre-takeoff checklist:

1- Presses and release the ALT button TWICE.

2- Rotate the KNOB to set the altimeter to the aircraft altimeter reading then momentarily press and release the KNOB.



SEL VS

Momentarily press and release KNOB



(If the sync page is entered by accident, momentarily pressing and releasing the MODE button will exit back to the normal operation screen)

SYNC (Before Engaging):

1- Presses and release the ALT button TWICE.

2- Rotate the KNOB to set the altimeter to the aircraft altimeter reading then momentarily press and release the KNOB.

100†

ENGAGE:

Press KNOB. Ground track and vertical speed.

NAV: Press MODE.

VS: Press then rotate KNOB.

ALT HOLD: Press ALT then press KNOB.

ALT SELECT: Press ALT, rotate KNOB, press KNOB, select VS press KNOB.

ADJUST VERTICAL SPEED and ALTITUDE: Press **KNOB Once (**VS) **Twice (**SEL altitude).

ALTITUDE PRE-SELECT MODE:

Autopilot Disengaged, press ALT rotate KNOB to select the target altitude, press and release KNOB.

Engage the Autopilot:

Momentarily press and release the KNOB. Autopilot will synchronize to the ground track and the current vertical speed.

The selected track can be adjusted by rotating the KNOB.

- 1) 5° increments when rotating the KNOB.
- 2) 1° increments when pressing and rotating the KNOB.

To access the GPS NAV mode from TRK mode, momentarily press and release the MODE button. Figure below shows the transition from TRK mode to GPS NAV mode.



Momentarily press and release MODE

^{TRK} 160 GPS NAV SVS <u>0</u>

Vertical Speed can be adjusted by a momentary press and release of the KNOB to move the cursor under the number next to SVS, and then rotating the KNOB.

ALT HOLD is accessed by a momentary press and release of the ALT button and then a momentary press and release of the KNOB.

ALTITUDE SELECT

Momentarily press and release ALT, rotate the KNOB to select the target altitude, momentarily press and release the KNOB, select desired vertical speed, momentarily press and release the KNOB.

ADJUST VERTICAL SPEED and ALTITUDE

Move the cursor. (Press and release the KNOB. Cursor will move to SVS,

Press and release the KNOB again to move the cursor to SEL altitude.)

ALTITUDE PRE-SELECT MODE

With Autopilot Disengaged, momentarily press and release ALT button, rotate the KNOB to select the target altitude, momentarily press and release the KNOB.

See Autopilot-Operating-Handbook for more information.

Complex Checkout PA28RT-201

Name_____ Date____ TOT_____

START_____ OFF_____ ON_____ IN_____

- AIRCRAFT_____
- \Rightarrow Preflight Discussion
- \Rightarrow Aircraft Performance Calculation
- ⇒ N12345 / IR-VR Flight Plan / Type=General / P28 B / SG / CU1/ DPRT(KXXX) / ZTIME / KTS / ALT/ DCT FIX DCT / Dest / ETE / ALT / FUEL / SOB / LAST FIRST / Phone / Base / Colors / REMARKS
- \Rightarrow Normal and Crosswind Takeoff (Heading +-5 degrees, Airspeed +-5 Kts.)
- \Rightarrow Short Field / Soft Field Takeoff (Heading +-5 degrees, Airspeed +-5 Kts.)
- \Rightarrow Engine Failure During Takeoff
- \Rightarrow Engine Failure After Lift-Off >400AGL Vx or Vy HDG. 10° ASPD 5Kt.
- \Rightarrow Clearing Turns At least 90 degrees heading change
- ⇒ Steep Turns VR + IR 45 Degree Bank Altitude +- 5 Degrees Heading +-10 degrees Altitude +-100' Airspeed +-10 Knots
- ⇒ Unusual Attitude Recovery (Airspeed Increasing = Power, Wings, Pitch; Airspeed Decreasing = Power, Pitch, Wings.)

- \Rightarrow Maneuvering During Slow Flight (Alt+-100' Hdg. +-10° Aspd. +10 -0 Bank +-10°.)
- \Rightarrow Stalls Power ON (At least one while turning in 15 to 20 degree bank)
- \Rightarrow Stalls Power Power OFF (At least one while turning in 15 to 20 degree bank)
- \Rightarrow Go-Around (Heading +-10° Altitude +-100' Airspeed Vx or Vy +10 -5 Kts.)
- ⇒ Normal or Crosswind Landing and Approaches to Landing (1.3Vso +10 -5 Kts. with wind/gust factor applied, TD<=400')</p>
- \Rightarrow Soft Field Approach and Landing (Heading +-5° Altitude +100'-0' Airspeed +-5 Kts.)
- \Rightarrow Short Field Approach and Landing (1.3Vso +10 -5 Kts. with wind/gust factor applied, TD<=200')
- \Rightarrow Forward Slips to Landing
- \Rightarrow Emergency Approach and Landing (10°. +-10Kts.)
- \Rightarrow Abnormal Procedures (Systems)
- \Rightarrow Emergency Procedures
- \Rightarrow Postflight & Notes

Review as Required for Proficiency

Name_____ Date____ TOT_____

START_____OFF_____ON_____IN_____

Landings_____ Pre/Post _____ Ground_____

- \Rightarrow Preflight Discussion
- \Rightarrow Aircraft Performance Calculation
- ⇒ N12345 / IR-VR Flight Plan / Type=General / P28 B / SG / CU1/ DPRT(KXXX) / ZTIME / KTS / ALT/ DCT FIX DCT / Dest / ETE / ALT / FUEL / SOB / LAST FIRST / Phone / Base / Colors / REMARKS
- \Rightarrow Normal and Crosswind Takeoff (Heading +-5 degrees, Airspeed +-5 Kts.)
- \Rightarrow Instrument Departure (Begin Takeoff Visually, or Takeoff with View-Limiting at 500' AGL)
- ⇒ Unusual Attitude Recovery (Airspeed Increasing = Power, Level Wings, Raise Pitch; Airspeed Decreasing = Power, Lower Pitch, Level Wings.)
- \Rightarrow Maneuvering During Slow Flight (Alt+-100' Hdg. +-10° Aspd. +10 -0 Bank +-10°.)
- \Rightarrow Power OFF Stalls (At least one while turning in 10 to 15 degree bank)
- \Rightarrow Power ON Stalls (At least one while turning in 10 to 15 degree bank)

- \Rightarrow Emergency (Power Off) Approach and Landing
- \Rightarrow Visual Approach: (Airspeed +-10 Kts. Altitude +-100' Heading +-10°)
- \Rightarrow Instrument Approach: (<3/4 Scale Deflection) (Airspeed +-10 Kts. Altitude +-100' Heading +-10°)

_____VOR _____ILS _____LOC _____RNAV____LPV _____BC

- \Rightarrow Go-Around (Heading +-10° Altitude +-100' Airspeed Vx or Vy +10 -5 Kts.)
- ⇒ Normal or Crosswind Landing and Approaches to Landing (1.3Vso +10 -5 Kts. with wind/gust factor applied, TD<=400')</p>
- \Rightarrow Landing from a Circling Approach (Heading +-5° Altitude +100'-0' Airspeed +-5 Kts.)
- \Rightarrow Short Field Approach and Landing (1.3Vso +10 -5 Kts. with wind/gust factor applied, TD<=200')
- \Rightarrow Forward Slips to Landing
- \Rightarrow Abnormal Procedures
- \Rightarrow Emergency Procedures
- \Rightarrow Practice as Necessary
- \Rightarrow Postflight and Next Lesson Preview

Cross-Country Evaluation

Name_____ Date_____ TOT_____

START_____ OFF_____ ON_____ IN_____

AIRCRAFT_____

Objectives: During this lesson you will be evaluated to determine your ability to plan and execute a cross-country flight safely. You will also have the opportunity to practice takeoffs, landings and other tasks, in preparation for solo cross-country flights.

Contents:

- ⇒ Preflight Discussion
- \Rightarrow Preflight
- \Rightarrow Obtaining Weather Information
- \Rightarrow Flight Plans, Flight Planning & Filing
- ⇒ Determining Performance And Limitations
- ⇒ Cross-Country Flight Planning for operations at Maximum Gross Weight with loading problem for a trip requiring fuel planning for alternate airport.
- \Rightarrow Airplane Systems
- \Rightarrow Ground Operations
- ⇒ Airport And Traffic Pattern Operations
- ⇒ Takeoffs And Climbs
- \Rightarrow Pilotage And Dead Reckoning
- \Rightarrow Navigation Systems and Radar Services
- \Rightarrow Diversion To Alternate

- \Rightarrow Lost Procedures
- \Rightarrow Aircraft Systems
- \Rightarrow Autopilot Operation
- \Rightarrow Abnormal Procedures (Systems)
- \Rightarrow Short Field TO
- \Rightarrow Short Field LDG
- \Rightarrow Soft Field TO
- \Rightarrow Soft Field LDG
- \Rightarrow Approaches And Landings
- \Rightarrow Post Flight Procedures

Completion Standards: You will demonstrate the ability to conduct cross-country flights, displaying competence and safety, and an understanding of the national airspace system pertinent to the airspace in which the flight is to be conducted. You will also gain further proficiency in takeoffs, landings and other tasks as required to improve technique.

Notes: