

Task III.C - Operation of Systems 10 - Environmental

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Lesson Overview

Objective

The student should exhibit knowledge of environmental systems in a single-airplane

Reference

- Piper Warrior PA-28-151 POH
- [Slide Presentation](#)

Elements

1. Heating, Ventilating, and Defrosting System
2. Operation

Equipment

1. Whiteboard
2. References
3. Diagram
4. Visual Aid

Schedule

1. Discuss objectives
2. Review material
3. Development
4. Conclusion

Instructor Actions

1. Discuss lesson objectives with student
2. Present the lecture
3. Answer questions the student has

Student Actions

1. Listen to presentation
2. Take notes on the lesson
3. Ask questions if further explanation is needed or just curious

Completion Standards

The student understands the environmental system and its operations in a Standards Piper Archer.

Instructor Notes

Attention

- [Story of the unconcious Landing](#) - Plane Lands Itself in Hayfield as Pilot Slumbers

Why

By understanding the heating, ventilation, and defrosting systems in the aircraft, the pilot can better control the cabin environment and its physiological impact on the pilot and passengers.

What

All about the advanced ammenities of comfort in the PA28A.

Heating and ventilating system

Heat for the cabin interior and the defroster system is provided by a heater muff attached to the exhaust system. The amount of heat desired can be regulated with the controls located on the far right side of the instrument panel.

The air flow can be regulated between the front and rear seats by levers located on top of the heat ducts next to the console.

Fresh air inlets are located in the inboard portion of the leading edge of the wing near and in the aft portion of the fuselage. Adjustable outlets are located on the side of the cabin near the floor and overhead on the ceiling at each seat location. Air is exhausted through an outlet under the rear seat. A cabin air blower, incorporated in the ventilating system, is also available as optional equipment. An optional overhead ventilating system with a cabin air blower is available on models without air conditioning.

This blower is operated by a FAN switch with 3 positions - "OFF," "LOW," "HIGH."

Carbon Monoxide Risk

While air is going over the exhaust, there is risk of carbon monoxide leaks occurring. Typically while flying it's a good idea to be aware of this risk, and look for signs of carbon monoxide poisoning. A CO2 detector should be on the aircraft pannel and carefully observed while in flight.

If carbon monoxide is suspected, open all the fresh air vents, and close the heat vents and land immediately.

- Warm air is being routed over the exhaust manifold, this could be a source of Carbon Monoxide Leak.
- When cabin heat is operated, heat duct surface becomes hot. This could result in burns if arms or legs are placed too close to heat duct outlets or surface.

Conclusion

Flying in Florida usually doesn't require a heater, but it's good to understand how the system works and the risks involved. It also does get cold in Florida if you go high enough.

ACS Requirements

To determine that the applicant exhibits instructional knowledge of the elements of principles of flight by describing:

1. Primary and secondary flight controls
2. Trim
3. Powerplant and propeller
4. Landing gear
5. Fuel, oil, and hydraulic
6. Electrical
7. Avionics including autopilot
8. Pitot static, vacuum/pressure and associated instruments
9. **Environmental**