

Cape Cod Community College AMTS

Practical Project Guide for AMT 271 Powerplant Curriculum, Subject Item 26-28 Part

147, Appendix D, Part 2, Subject H – Induction and Engine Airflow Systems

- Item 26. **Inspect, check, troubleshoot, service, and repair engine ice and rain control systems.** (Level 2)  
Item 28. **Inspect, check, service, and repair carburetor air intake and induction manifolds.** (Level 3)

### **Project 1A & 1B & 1C**

Purpose: To acquaint the student with the proper procedures of inspecting, checking, servicing and repairing carburetor air intake and induction manifolds and engine ice and rain control systems.

References:

- (1) 14 CFR, Federal Aviation Regulations for Aviation Maintenance Technicians (Current Edition), Aviation Maintenance Technician Handbook – Powerplant, Volume 1 (FAA-H-8083-32) Chapter 3 Piper Colt Flight and Parts Manuals
- (2) Lycoming Direct Drive Overhaul Manual
- (3) Piper Comanche 250 (PA-24) Service Manual
- (4) Piper Comanche 250 (PA-24) Parts Catalog
- (5) Lycoming O-540 Engine Service Manual
- (6) AeroTrain AE-30-320 Operation Manual
- (7) O-320 Illustrated Parts Manual

Equipment and Tools Needed:

- (1) Piper Colt (PA 22)
- (2) Piper Comanche 250 (PA 24)
- (3) AeroTrain AE-30-320 O-320 Operational Training Aid
- (4) AMT Roll-Around Toolbox
- (5) Shop Vacuum
- (6) Squirt bottle with soap solution
- (7) Computer workstation with internet access.

Supplies and Materials Needed:

- (1) None

Procedure:

**Complete following procedure on the assigned project 1A or 1B or 1C**

- (1) Remove engine cowling as necessary to gain access to the engine induction system.
- (2) Inspect the system for visual defects and list all discrepancies.
- (3) Repair any missing or damaged components or parts.
- (4) Remove, service, and reinstall the engine air intake filter.
- (5) Check the operation and rigging of the carburetor heat system.
- (6) Perform a Pressure Check of the induction manifold. Be sure to check it a second time after rotating the propeller ½ turn. **INSURE THE MAGNETO SWITCH IS OFF BEFORE MOVING THE PROPELLER!**
- (7) Reinstall any cowling, baffles, and panels removed in step 1 in accordance with installation procedures.
- (8) Complete maintenance record entries.

**Project 1A** Item 26. **Inspect, check, troubleshoot, service, and repair engine ice and rain control systems.** (Level 2) and Item 28. **Inspect, check, service, and repair carburetor air intake and induction manifolds.** (Level 3)

- (1) 14 CFR, Federal Aviation Regulations for Aviation Maintenance Technicians (Current Edition), Aviation Maintenance Technician Handbook – Powerplant, Volume 1 (FAA-H-8083-32) Chapter 3 Piper Colt (PA 22)
- (2) Piper Colt Flight and Parts Manuals
- (3) Lycoming Direct Drive Overhaul Manual

**Project 1B** Item 26. **Inspect, check, troubleshoot, service, and repair engine ice and rain control systems.** (Level 2) and Item 28. **Inspect, check, service, and repair carburetor air intake and induction manifolds.** (Level 3)

- (1) 14 CFR, Federal Aviation Regulations for Aviation Maintenance Technicians (Current Edition), Aviation Maintenance Technician Handbook – Powerplant, Volume 1 (FAA-H-8083-32) Chapter 3 Piper Comanche 250 (PA-24) Service Manual
- (2) Piper Comanche 250 (PA-24) Parts Catalog
- (3) Lycoming O-540 Engine Service Manual

**Project 1C** Item 26. **Inspect, check, troubleshoot, service, and repair engine ice and rain control systems.** (Level 2) and Item 28. **Inspect, check, service, and repair carburetor air intake and induction manifolds.** (Level 3)

- (1) 14 CFR, Federal Aviation Regulations for Aviation Maintenance Technicians (Current Edition), Aviation Maintenance Technician Handbook – Powerplant, Volume 1 (FAA-H-8083-32) Chapter 3
- (2) AeroTrain AE-30-320 O-320 Operational Training Aid
- (3) AeroTrain AE-30-320 Operation Manual
- (4) O-320 Illustrated Parts Manual

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Item 26. **Inspect, check, troubleshoot, service, and repair engine ice and rain control systems.** (Level 2)

Item 28. **Inspect, check, service, and repair carburetor air intake and induction manifolds.** (Level 3)

## **Project 2**

Purpose: To acquaint the student with the proper procedures of troubleshooting carburetor air intake and induction manifolds and engine ice and rain control systems.

References:

- (1) 14 CFR, Federal Aviation Regulations for Aviation Maintenance Technicians (Current Edition), Aviation Maintenance Technician Handbook – Powerplant, Volume 1 (FAA-H-8083-32) Chapter 3  
Piper Colt Flight and Parts Manuals
- (2) Piper Comanche 250 (PA-24) Service Manual
- (3) Piper Comanche 250 (PA-24) Parts Catalog
- (4) AeroTrain AE-30-320 Operation Manual

Equipment and Tools Needed:

- (1) Computer workstation with internet access.

Supplies and Materials Needed:

- (1) None

Procedure:

**Complete following procedure on the assigned project 2**

- (1) On page 2, fill in Troubleshooting Chart concerning an engine's Induction system. None of these involve the Carburetor, only the remainder of the Induction System.

Probable Cause	Isolation Procedure	Correction
Engine Fails to Start		
Engine Runs Rough		
Low Power		
Engine Idles Improperly		

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