# REMOVAL / INSTALL / RUN / INSPECT

## Course Syllabus

**Course Number:** TRPPM1-3004  
**OHLAP Credit:** No  
**OCAS Code:** None  
**Course Length:** 63 Hours  
**Career Cluster:** Transportation, Distribution & Logistics  
**Career Pathway:** Aerospace Maintenance  
**Career Major(s):** Powerplant Mechanic

### Pre-requisite(s):

### Course Description:

Purpose for engine removal and safety precautions and installation of engines will be discussed. Students will remove, install, perform pre-operated checks, inspect, troubleshoot and repair engines as needed. Engines will be inspected, troubleshoot, checked and tested for proper operation. Engine records will be reviewed in-depth. Proper logbook entries and form documentation will be made per FAA regulations.

### Textbooks:


### Course Objectives:

**A. Lesson: ENGINE REMOVAL PROCESS**

1. Define terms related to reciprocating engine removal.  
2. Discuss conditions that necessitate an engine removal.  
3. State the difference between a built-up (QECA) engine and a bare engine.  
4. Discuss the major reasons to have QECA engines and/or bare engines.  
5. Describe operations related to reciprocating engine removal.  
6. Discuss safety procedures related to the removal and installation of engines in aircraft.  

**B. Lesson: RECIROCATING ENGINE INSTALLATION AND OPERATION**

1. Discuss depreservation of an engine.  
2. Describe inspection and depreservation of accessories. (PP-N1)  
3. Explain the procedure for reciprocating engine installation.  
6. Install external accessories and/or systems. (Level 3) (App. D,I,A,4) (PP- K11, N1)  
9. Discuss preparation of engine for ground and flight testing.  
11. Discuss and perform checks and adjustments of engine control systems. (Level 3)
15. List and discuss the six steps in the troubleshooting procedure.
16. Perform troubleshooting on engine, as required or assigned. (Level 3) (App. D,I,A,4) (PP-O15)
17. Inspect, check, troubleshoot, and repair as needed engine ice and rain control systems. (Level 2) (App. D,II,D,16) (PP-O5,O18)

C. Lesson: ENGINE AIRWORTHINESS INSPECTION
1. Discuss terms and definitions related to an engine inspection.
2. Explain the purpose of an engine inspection and the procedures used.
3. Discuss requirements for a preflight inspection.
4. Perform preflight inspection of a reciprocating engine. (Level 3) (App. D,I,A,3) (PP-N16,N18,O1,O2,O3,O9,O10,O11,O20)
5. Discuss opening and cleaning for 100-hour/annual inspections.
6. Explain servicing of oil screens and filters.
7. Discuss inspection of oil system lines.
8. State the purpose of a compression test and describe the two basic types of compression testers.
9. Discuss magneto inspection.
10. Discuss inspection and cleaning of spark plugs.
11. Explain ignition harness inspection, testing and proper installation.
12. Discuss inspection and maintenance of the induction system air filters and ducting.
13. Discuss an inspection of the engine fuel system and fuel-metering system.
14. Explain the inspection and maintenance of engine controls.
15. Discuss the importance of proper inspection and maintenance of exhaust systems.
16. Describe engine mount types and inspection procedures.
17. Explain the importance of fire-wall seals.
18. Discuss the inspection of superchargers and turbochargers.
19. Discuss the inspection of engine instruments.
20. Explain an engine conformity inspection.
21. Perform a conformity inspection on a reciprocating engine. (Level 3) (App. D,I,C,8) (PP-C1,C2,C3,C4,C5,C6,C7,C9,C10)
23. Perform AD research on engine and equipment, and record findings on AD compliance form. (Level 3) (App. D,I,C,8)

D. Lesson: MAINTENANCE AND FAA MAINTENANCE REQUIREMENTS
1. Define maintenance.
2. Discuss types of maintenance.
3. Discuss the importance of using only approved data and exact specifications when performing maintenance.
4. Explain the need for proper log book entries.
5. Write engine logbook entries to indicate compliance with an AD, and completion of 100-hour/annual inspection. (Level 3) (App. D,I,C,8)
6. Discuss FAA Form 337.
7. Complete FAA form, as required, for overhauled reciprocating engine with gear reduction and/or supercharger. (Level 3) (App. D,I,C,8)
Teaching Methods: The class will primarily be taught by the lecture and demonstration method and supported by various media materials to address various learning styles. There will be question and answer sessions over material covered in lecture and media presentations. Supervised lab time is provided for students to complete required projects.

Grading Procedures:
1. Students are graded on theory and shop practice and performance.
2. Each course must be passed with seventy (70%) percent or better.
3. Grading scale: A=90-100%, B=80-89%, C=70-79%, F=0-69%.

Description of Classroom, Laboratories, and Equipment: Tulsa Technology Center campuses are owned and operated by Tulsa Technology Center School District No. 18. All programs provide students the opportunity to work with professionally certified instructors in modern, well-equipped facilities.

Available Certifications/College Credit: The student may be eligible to take state, national or industry exam after completion of the program. College credit may be issued from Oklahoma State University-Okmulgee, Rogers State University or Tulsa Community College. See program counselor for additional information.

College Credit Eligibility: The student must maintain a grade point average of 2.0 or better.