Fall 9-1-2005

DET 128T.01: Engine Service I

Unknown

University of Montana - Missoula

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ENGINE SERVICE I
DET 128
CREDITS 4
PREREQUISITES: NONE
CLASS TIMES: 10-12/1-3 M-F
ROOM: TT02/DIESEL LAB

Course Description: An introduction to the construction and operation of internal combustion engines with the diesel engine being examined in depth. The use of commonly found measuring tools and related specialty tools will be covered extensively along with common manufacture rebuild procedures. Start-up and running practices will be demonstrated on various running diesel engines. Students will be paired up on a knowledge basis and assigned a runnable diesel engine which will then be disassembled according to the manufacture, measured, reassembled and run to the instructor’s satisfaction.

Course Objectives:
1) Explain operating principles of the two and four cycle diesel engine.
2) Perform common rebuild procedures as described by the manufacture.
3) Operate common diesel engine rebuild tools to spec.
4) Start and operate a diesel engine as prescribed by the manufacture.

Required Text: Modern Diesel Technology by Robert N. Brady

Course Outline:
A. Engine Identification
   1) serial numbers
   2) model numbers
   3) engine component identification
B. Engine Teardown
   1) removal of engine components
   2) marking and cleaning of engine components

C. Engine Component Rebuilding Procedures
   1) service manual usage
   2) measuring tools, usage and reading
   3) cylinder head/valvetrain
   4) cylinder sleeve/piston assembly
   5) crankshaft/bearing assembly
   6) cylinder block reconditioning
   7) lub and cooling assemblies

D. Related Engine Systems
   1) intake systems
   2) exhaust systems

E. Engine Rebuilding Procedures
   1) assembly of major components
   2) gaskets, seals, and sealents
   3) torqing of major components
   4) timing of the engine

F. Engine Start-up Procedures
   1) pre-lubing of engine
   2) priming the fuel system
   3) starting of engine
   4) general engine run-in procedures

**ATTENDANCE**: Two unexcused absences drops the final grade one letter! Each unexcused absence continues to drop the final grade one letter until the grade of F is reached at which time the student will be asked to withdraw from the class. TEST AND QUIZZES WILL NOT BE MADE UP!!!!!!!!!!!!!

**SAFETY**: Students will wear eye protection in the lab, hearing protection will be worn when required. Clean coveralls will be worn when in the lab along with work style boots-tennis shoes WILL NOT be allowed in the lab area! **NO HORSE PLAY!!!!!**
GRADING:

LECTURE: 4-100 point tests will be given throughout the class period-the grading formula will be as follows: (I reserve the right to give more if needed)

- 90-100=A
- 80-90=B
- 70-80=C
- 60-70=D
- 0-60=F

Note: A comprehensive final test will be given at the end of the class that will have a different grading scale.

LAB: Job sheets dealing with each exercise will be given out as the engine is disassembled and assembled-each student will be expected to do the work sheets on his/her own (NO COPYING), at completion time the sheet must be signed by your instructor or it will not count!! These sheets will be turned in at the end of the class with a three ring binder containing all handouts, notes ECT. This notebook will influence your final grade.

Lecture counts for 50% of the final grade
Lab counts for 50% of the final grade
Lab can not raise the final grade more than one letter grade

(Both lecture and lab must be passed with a grade of C or better)

TOOL ROOM: Each student is responsible for keeping the tool room in working order; this includes reporting any broken tools so they can be repaired in an orderly fashion. Tools will be put back in their proper location when done so the next person may use it. NO ONE shall violate this policy or the tool room will be locked up and the student will be asked to leave the class--this policy is enforced to the max!!!!!!!!!!!!

STUDENT CONDUCT: All University of Montana College of Technology students are required to follow the student handbook!! No substitutions will be tolerated. Anyone failing to do so will be asked to leave the class.