

BILLINGS PUBLIC SCHOOLS
SUSPENSION & STEERING
Adoption Date April, 12, 2004

MISSION STATEMENT

The Career Center is dedicated to providing Billings area students with an education that explores and enhances vocational and academic skills to promote critical thinking, self-discipline, and responsible citizenship.

BELIEF STATEMENTS

1. We believe in an environment that fosters mutual respect and dignity.
2. We believe that students and faculty should maintain pride in their work to improve their performance.
3. We believe that academic skills lay the foundation for critical thinking, problem solving, mathematical and communication skills.
4. We believe in the integration of academic and career areas.
5. We believe in the importance of current technology, and its impact on the future.
6. We believe the students who are encouraged to set goals will gain confidence in their potential and ability to contribute to society.
7. We believe mutual support between school and community is an integral part of a students learning experience.

PHILOSOPHY

The automotive technician is a person who works in an exciting, rapidly changing and growing industry. The automotive technology curriculum is designed to educate individuals to become competent auto technicians. The primary focus of the educating program is the diagnosis, service and repair of automobile systems and components. Students will perform service on modern automotive equipment using special test equipment and tools. Students in the program will learn how to plan and perform repairs according to the various manufacturers recommended procedures. Career and Vocational/Technical Education programs focus on career preparation, resource management, communication, technical skill development, applied academics, technological literacy; and personal skills and leadership.

LEARNING DOMAINS

- I. The learner will demonstrate an understanding of automotive literacy.**
- II. The learner will demonstrate an understanding of automotive work place skills.**
- III. The learner will demonstrate an understanding of safety procedures utilized in the automotive industry.**
- IV. The learner will demonstrate an understanding of the various components used in steering and suspension systems.**
- V. The learner will be able to perform inspections on steering and suspension components and make repairs and adjustments.**
- VI. The learner will apply automotive technological applications and be able to perform two-wheel and four-wheel alignments.**

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Learner Objectives

I. The learner will demonstrate an understanding of automotive literacy.

Student will demonstrate an understanding of automotive literacy. (E)

- 1. Locate and describe the parts of a conventional short arm long arm steering system.**
- 2. Locate and describe the parts of a Macpherson strut steering system.**
- 3. Locate and describe various suspension components.**

II. The learner will demonstrate an understanding of automotive work place skills.

Student will demonstrate an understanding of automotive work place skills. (E)

- 4. Demonstrate attendance requirements consistent with the work world.**
- 5. Demonstrate punctuality related to assignments, attendance, and lab projects.**
- 6. Follow and understand directions in all lab requirements.**
- 7. Work independently with minimum supervision.**

III. The learner will demonstrate an understanding of safety procedures utilized in the automotive industry.

Student will demonstrate an understanding of safety procedures utilized in the automotive industry. (E)

- 8. List the types of accidents that can happen in the auto shop.**
- 9. Explain how to prevent accidents in the auto shop.**
- 10. Describe general safety rules for working in the auto shop.**
- 11. Describe all pertinent safety rules for the steering and alignment lab areas.**
- 12. Describe and be able to operate the fire extinguishers found in the lab area.**

IV. The learner will demonstrate an understanding of the various components used in steering and suspension systems.

Student will demonstrate the techniques required to inspect, dismount and remount tire/rim combinations. (E)

- 13. Demonstrate what is required to inspect tires to determine if they are still usable.**
- 14. Demonstrate how to operate the tire/rim changing equipment to dismount and remount a tire on a steel, aluminum or magnesium rim.**
- 15. Student will demonstrate complete rebuilding and replacement of steering and chassis components through lab based projects. (E)**
 - a. Demonstrate the disassembly and reassembly of manual steering sector boxes.**
 - b. Demonstrate the disassembly and reassembly of power steering sector boxes.**
 - c. Demonstrate the disassembly and reassembly of power steering pumps.**

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Learner Objectives

IV. The learner will demonstrate an understanding of the various components used in steering and suspension systems. (cont)

16. Student will demonstrate the techniques required to inspect, dismount and remount tire/rim combinations. (E)

17 . Student will demonstrate complete rebuilding and replacement of steering and chassis components through lab based projects. (E)

- a. Demonstrate the disassembly and reassembly of manual rack and pinion steering systems.**
- b. Demonstrate the disassembly and reassembly of power rack and pinion steering systems.**

V. The learner will be able to perform inspections on steering and suspension components and make repairs and adjustments.

18. Student will demonstrate final inspections, adjust alignments angles and make adjustments to steering components. (E)

- c. Students will demonstrate how to grease all steering components.**
- d. Students will demonstrate how to visually inspect chassis components.**
- e. Students will demonstrate how to adjust manual steering sector boxes.**
- f. Students will demonstrate how to adjust V and serpentine belts on power steering pumps.**

19. Student will demonstrate final inspections, adjust alignments angles and make adjustments to steering components: (E)

- a. Demonstrate how to measure and determine the correct ride height of vehicle according to the manufactures specifications.**
- b. Demonstrate how to inflate a vehicles tires to the correct manufacturers pressure recommendation.**
- c. Measure caster, camber, toe-in and toe-out alignment angles and making any necessary adjustments.**
- d. Road test vehicle and determine if any the alignment has been properly performed or if any changes need to be made before returning the vehicle to the owner.**

VI. The learner will apply automotive technological applications and be able to perform two-wheel and four-wheel alignments. (E)

20. Student will demonstrate how to measure tread depth of all tires on a vehicle.

21. Student will demonstrate how to measure steering components, to determine if they are worn and need replacing.

