# AUTOMOTIVE SPECIALIZATION (Brakes)

## STUDENT GRADE RECORD

*Career & Technical Education*

**WINDHAM SCHOOL DISTRICT**

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### Windham Module Test Average

\[ \frac{a}{0.75} \]

**Completer**

### Windham End of Course Exam

\[ \frac{b}{0.25} \]

**Windham Module Score**

\[ (a + b) = 70+ \]

**% Competencies Completed**

70+

**Module Competency Rating**

2.7+

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*I attest that all of the information reported on this form is true.*

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# AUTOMOTIVE SPECIALIZATION (Brakes)

## STUDENT PROGRESS RECORD

<table>
<thead>
<tr>
<th>RECORDING DIRECTIONS</th>
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<tr>
<td><strong>SKILL RATING:</strong> Post the student’s competency rating for each skill performed.</td>
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<tr>
<td><strong>MODULE TEST SCORE:</strong> Enter the student’s test score for the module.</td>
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<tr>
<td><strong>MODULE RATING:</strong> Use the following scale to determine module rating:</td>
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<tr>
<td>![4] Skilled - Can perform competencies independently with no supervision.</td>
</tr>
<tr>
<td>![3] Moderately Skilled - Can perform competencies with limited supervision.</td>
</tr>
<tr>
<td>![2] Limited Skill - Requires instruction and close supervision to perform competencies.</td>
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<tr>
<td>![1] Unskilled - Exposed to concept, but no hands-on experience.</td>
</tr>
<tr>
<td><strong>Note:</strong> When evaluating a student’s module rating, skill performance should be given priority.</td>
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### 1. CTE Orientation

**Teacher:** ____________  **Student:** ____________

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1. Identify employment opportunities related to the course.
2. Identify the number of classroom hours a student must attend to be considered as a completer.
3. Identify the industry-recognized certification.
4. Identify course expectations including:
   - Working conditions
   - Attendance expectations
   - Instructor’s expectations

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### 2. Introduction to Brake Systems

**Chapter 1**

**Module Test Score _____**

**Minimum 100% Required**

**Module Rating (4, 3, 2, 1)**

1. Define the purpose of anti-lock brakes and traction control systems.

---

### 3. Shop Safety and Environmental Protection

**Chapter 2**

**Module Test Score _____**

**Minimum 100% Required**

**Module Rating (4, 3, 2, 1)**

1. Identify the major causes of accidents.
2. Identify brake dust hazards.
3. List ways to maintain a safe workplace.
4. List safe work procedures.
5. Identify types of environmental damage caused by improper auto shop practices.
6. Identify ways to prevent environmental damage.

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### 4. Brake Tools, Shop Equipment, and Service Information

**Chapter 3**

**Module Test Score _____**

**Minimum 100% Required**

**Module Rating (4, 3, 2, 1)**

1. Identify common specialty brake tools and explain their use.
2. Identify brake system measuring tools and explain their use.
3. Identify power tools and equipment used in brake service and explain their use.

---

### 5. Hydraulic System Fundamentals

**Chapter 4**

**Module Test Score _____**

**Minimum 100% Required**

**Module Rating (4, 3, 2, 1)**

1. Identify the components of a simple brake hydraulic system.
2. Identify the qualities of brake fluid and fluid classifications.

---

### 6. Master Cylinders, Calipers, and Wheel Cylinders

**Chapter 5**

**Module Test Score _____**

**Minimum 100% Required**

**Module Rating (4, 3, 2, 1)**

1. Identify the kinds of calipers.
7. Master Cylinder, Calipers, and Wheel Cylinder Service  
   Chapter 6

   **Module Test Score** 
   **Module Rating (4, 3, 2, 1)**
   1. Check master cylinder condition.  
   2. Remove, overhaul, and install master cylinders. 
   3. Check disc brake caliper condition.  
   4. Remove, overhaul, and install disc brake calipers.  
   5. Check wheel cylinder condition.  
   6. Remove, overhaul, and replace wheel cylinders.  
   7. Bleed air from the hydraulic system.

8. Power Assist Units  
   Chapter 7

   **Module Test Score** 
   **Module Rating (4, 3, 2, 1)**
   1. Identify vacuum and hydraulic power assist units.  
   2. Identify the components of vacuum power assist units.  
   3. Identify the power sources and safety provisions of vacuum power assist units.  
   4. Explain how hydraulic power assist units operate.  
   5. Identify the components of hydraulic power assist units.  
   6. Identify the power sources and safety provisions of hydraulic power assist units.

9. Power Assist Unit Service  
   Chapter 8

   **Module Test Score** 
   **Module Rating (4, 3, 2, 1)**
   1. Check and adjust brake pedal free travel.  
   2. Check vacuum power assist unit for leaks.  
   3. Inspect vacuum hoses and check valves.  
   4. Check electrical and mechanical vacuum pumps.  
   5. Remove and replace a vacuum assist unit.  
   6. Overhaul a vacuum assist unit.  
   7. Flush and bleed a Hydro-boost unit and related components.  
   8. Replace a Powermaster unit.

    Chapter 9

    **Module Test Score** 
    **Module Rating (4, 3, 2, 1)**
    1. Identify types of brake line flares.  
    2. Identify various types of brake fittings and explain their function.

11. Hydraulic Valve, Switch, Line, and Hose Service  
    Chapter 10

    **Module Test Score** 
    **Module Rating (4, 3, 2, 1)**
    1. Test the operation of hydraulic system valves.  
    2. Test the operation of low brake fluid switches.  
    3. Test the operation of brake light switches.  
    4. Remove and replace valves and switches.  
    5. Bend, cut, and flare replacement steel hydraulic lines.  
    6. Replace flexible hoses.  
    7. Replace brake fittings.

12. Friction Brake Theory  
    Chapter 11

    **Module Test Score** 
    **Module Rating (4, 3, 2, 1)**
    1. Explain the relationship of friction to heat development.

13. Disc Brake System Components and Operation  
    Chapter 12

    **Module Test Score** 
    **Module Rating (4, 3, 2, 1)**
    1. Identify the components of a disc brake.  
    2. Identify the two main types of rotors.  
    3. Identify the three types of front caliper piston arrangements.  
    4. Identify and explain the operation of fixed and floating calipers.  
    5. Identify floating caliper mounting methods.  
    6. Identify and explain the operation of rear calipers.  
    7. Identify brake pad materials and construction.
14. Disc Brake Service
Chapter 13

Module Test Score ______

Module Rating (4, 3, 2, 1)

1. Remove and replace front disc brake calipers.
2. Remove and replace rear disc brake calipers.
3. Remove and replace disc brake pads.
4. Refinish disc brake rotors.

15. Drum Brake System Components and Operation
Chapter 14

Module Test Score ______

Module Rating (4, 3, 2, 1)

1. Identify major drum brake components.
2. Identify types of brake drums.
3. Identify servo and non-servo brakes and explain their operation.

16. Drum Brake Service
Chapter 15

Module Test Score ______

Module Rating (4, 3, 2, 1)

1. Remove and replace brake drums.
2. Check brake shoe condition.
3. Check brake springs for damage.
4. Check condition of brake shoe adjuster mechanisms.
5. Check drum diameter and compare with maximum wear limits.
6. Remove and replace brake shoes.
7. Refinish brake drums.
8. Adjust drum brake clearance.

17. Wheel Bearings and Oil Seals
Chapter 16

Module Test Score ______

Module Rating (4, 3, 2, 1)

1. Identify types of wheel hubs and axle flanges.
2. Identify types of wheel bearings.
3. Identify common locations and usage of each wheel bearing type.
4. Identify brake related locations using gaskets or O-rings.

18. Wheel Bearing and Oil Seal Service
Chapter 17

Module Test Score ______

Module Rating (4, 3, 2, 1)

1. Remove and clean tapered wheel bearings.
2. Inspect tapered roller wheel bearings and identify defects.
3. Remove and replace pressed in wheel bearing races.
4. Lubricate, install, and adjust tapered roller wheel bearings.
5. Remove and replace oil seals.
6. Remove and replace gaskets and O-rings.
7. Remove and replace wheel studs.

19. Parking Brakes
Chapter 18

Module Test Score ______

Module Rating (4, 3, 2, 1)

1. Identify the components and explain the operation of driver applied parking brake levers.
2. Identify the components and operation of parking brake warning lights.
3. Identify the components of parking brake linkage.

20. Parking Brake Service
Chapter 19

Module Test Score ______

Module Rating (4, 3, 2, 1)

1. Adjust parking brakes.
2. Service parking brake cables and related parts.
3. Service automatic vacuum brake release mechanisms.
4. Service warning lights.
5. Adjust drum parking brake wheel assemblies.
6. Adjust disc parking brake wheel assemblies.
21. Brake System Electrical and Electronic Components

Chapter 20

Module Test Score ________
Module Rating (4, 3, 2, 1)
1. Identify basic electrical measurements.
2. Identify basic vehicle electrical circuits.
3. Identify the major parts of vehicle computers.

22. Anti-Lock Brake and Traction Control System Components and Operation

Chapter 21

Module Test Score ________
Module Rating (4, 3, 2, 1)
1. Identify and explain the purpose of anti-lock brake system components.
2. Identify and explain the purpose of traction control system components.
3. Identify common components of anti-lock brake systems and traction control systems.
4. Identify major manufacturers of anti-lock brake systems and traction control systems.

23. Anti-Lock Brake and Traction Control System Service

Chapter 22

Module Test Score ________
Module Rating (4, 3, 2, 1)
1. Perform anti-lock brake system maintenance.
2. Use scan tools to retrieve trouble codes from an anti-lock brake or traction control system.
3. Use scan tools to diagnose problems in an anti-lock brake or traction control system.
4. Check electrical and electronic components of ABS/TCS systems.
5. Make pressure checks of ABS/TCS hydraulic components.
6. Adjust ABS/TCS wheel sensors and brake travel switches.
7. Replace defective anti-lock brake system components.
8. Replace defective traction control system components.

24. Troubleshooting Brake Systems

Chapter 23

Module Test Score ________
Module Rating (4, 3, 2, 1)
1. Use the seven-step procedure to troubleshoot brake problems.
2. Inspect brake components for wear and damage related to the complaint.

25. ASE Certification

Chapter 24

Module Test Score ________
Module Rating (4, 3, 2, 1)
1. Explain why certification is beneficial to the technician, shop owners, and the driving public.

26. Career Preparation

Chapter 25

Module Test Score ________
Module Rating (4, 3, 2, 1)
1. Identify three classifications of automotive technicians.
2. Identify the major sources of employment in the automotive industry.
3. Identify advancement possibilities for automotive technicians.

Number of Skills Completed +
107 Number of Skills on SPR =
% of Skills Completed

Conference
Date: ___________ Hours in class: ______
Comments:
___________________________________________________
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Teacher initial: _______ Student initial: _______