

## NATEF TASK SHEET --- SECTION A5 E.2, E.3 (P-1)

### A5E2 - A5E3: CHECK VACUUM-TYPE POWER BRAKE BOOSTER

Student: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

VIN: \_\_\_\_\_ Year: \_\_\_\_\_ Make: \_\_\_\_\_ Model: \_\_\_\_\_

Engine: \_\_\_\_\_ Transmission: \_\_\_\_\_ Production Date: \_\_\_\_\_

**OBJECTIVE:** Student will check vacuum supply to vacuum-type power brake booster, test booster operation, and determine necessary action.

- MATERIALS:**
1. **EYE PROTECTION**
  2. Hand Tools
  3. Vacuum Gauge
  4. Vehicle (see instructor)

**PROCEDURE:** **WEAR EYE PROTECTION!** Read this procedure completely through before starting task.

#### Introduction

Brake boosters use vacuum to assist in brake pedal application. It is nothing more than a chamber with a rubber diaphragm that reacts to vacuum pressure. In order for it to operate properly, it must have a good vacuum source, a one-way valve on the booster to prevent loss of vacuum, a good diaphragm with no holes to let the vacuum escape and the proper rod adjustment.

#### Check for Vacuum Leaks

If the vehicle has an abnormal pedal pressure, look at the vacuum source first. Look for a bad hose, such as one with holes, is too soft and collapses easily, or has a bad connection on the intake manifold. Correct the problem if found and continue if brake assist is not restored. 1. **Is the vacuum hose in good condition? Yes No circle one**

If no problem is evident, then start the engine and use pliers to squeeze the hose midway between the engine and the booster and carefully pull the one-way valve out of the booster. Do not lose the rubber grommet in the booster that the one-way valve fits into. The engine will not run well if the pliers are released, since it will make a major vacuum leak. Put a finger over the one-way valve end first. Release the pliers and feel if there is good vacuum in the hose or if any leaks can be heard. You will hear a hissing sound if there are leaks.

2. **Are there any leaks? Yes No circle one**

#### Check the Booster and Master

If the hose has a good suction and no other leaks are found, clamp the hose once again to slow the vacuum loss and push the one-way valve back into the vacuum booster. Shut the engine off and immediately pull the one-way valve off the booster. If the booster is holding vacuum, you will hear a loud whooshing noise.

3. **Did you hear a loud whooshing noise? Yes No circle one**

If no noise or very little is heard, check the one-way valve to see if it is functioning properly. Hold the valve to your mouth and put suction on one side and then on the other. If air can be sucked through the valve in one direction and not the other the valve is good. If air can be sucked through both sides it is bad and needs to be replaced.

4. **Is the vacuum one-way valve good? Yes No circle one**

If the valve is good then the booster is bad and needs to be replaced. The reason for the failure could be it is defective or it could have a leaky master cylinder. Look at the mounting surfaces where the master cylinder mounts to the booster. If there is any brake fluid on the booster the master is leaking into the booster and causing deterioration of the diaphragm. Replace the master cylinder as well, for it will ruin the new booster.

5. **Is there any fluid leakage where the master mounts to the booster? Yes No circle one**

**\*\*After answering above questions 1- 5, on the back of this page, explain what needs to be done to this vehicle.\*\***

#### INSTRUCTORS EVALUATION

LEVEL OF SKILL ATTAINED	<i>Initial</i>	OVERALL SKILL EVALUATION	<i>Points</i>
DEMONSTRATES MASTERY (5)		DOCUMENTATION COMPLETENESS (1)	
PERFORMS SATISFACTORILY (4)		SAFETY COMPLIANCE (1)	
CAPABLE, NEEDS PRACTICE (3)		WORK PROFESSIONALISM (3)	
ASSISTED IN PERFORMING (2)		LEVEL OF SKILL ATTAINED (1-5)	
EXPOSURE, OBSERVATION (1)		<b>TOTAL SCORE</b>	
<b>INSTRUCTOR'S SIGNATURE:</b>			
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