JOB SHEET A5G2: Diagnose ABS Systems

Name: ______________________________  Start Date: ___________
End Date: ___________
Make: ____________________________  Model: ____________________________  Year: ___________
VIN: ______________________________  Mileage: ___________

Learning Objective/NATEF Task
- Identify and inspect electronic brake control system components; determine necessary action.
  - NATEF task A5/G1, P1. ICS 166
- Diagnose poor stopping, wheel lock-up, abnormal pedal feel, unwanted application, and noise concerns associated with the electronic brake control system; determine necessary action.
  - NATEF task A5/G2, P2. ICS 167

Tools and Materials
- Classroom vehicle and/or components
- OEM service manual
- Scan tool
- Safety glasses

Procedure
1. You must understand and observe all State/Federal Regulations and personal safety procedures when carrying out the following task(s). Wear safety glasses for this entire procedure.


3. In the OEM service manual for your classroom vehicle, locate the procedure for symptom diagnosis for poor stopping, wheel lock-up, abnormal pedal feel or pulsation, and noise concerns caused by the electronic brake system. Submit this procedure to your instructor or mentor for approval and then answer the following questions.

Your instructor must stamp or initial the box to the right before you can proceed with this job sheet.
1. Make sure wheels and tires are all the correct size and type recommended by the OEM.

2. Check ABS system fuses. What is the result of your inspection?

3. Both the low fluid red warning lamp and amber brake ABS indicator lamp should turn on when ignition is turned on. When you start the engine, the red brake warning lamp should turn off. Is red warning lamp on? 

   If the red warning lamp remains on, should you road test the vehicle? Why or why not?

4. When the ignition is in “run” position, ABS computer will perform a self-test on ABS electrical system. How long does this self-test take on your vehicle? During the self-test, Amber ABS lamp should remain on. Once the self-test is done, the ABS lamp should turn off. If the ABS detects any fault during the test, the ABS lamp will remain on and set a DTC. What are the results of your test?

5. What does the amber warning lamp do if the ECM detects a problem with the system?
6. What happens when a solid ABS indicator lamp indicates that a problem has been detected that affects the ABS operation?

7. Connect a scan tool to DLC and perform the OEM recommended Diagnostic Checks. Check for ABS related DTCs. What did you find?

8. Check all the ABS system electrical connections and record what your findings:

9. Are all ground connections tight and corrosion free? Are all hydraulic lines and connections in good condition? What is the result of your inspection?

10. Conduct a visual inspection of all ABS and brake components. Describe what you found and what needs to be done before further diagnosis of the ABS.

11. Check master cylinder fluid level. Did you have to add brake fluid? What type of brake fluid is used on your ABS vehicle?
12. Inspect for leakage at the master cylinder and ABS pump, brake lines, hoses, and all connections. What is the result of your inspection?

________________________________________________________________________

________________________________________________________________________

13. In the OEM service manual for your classroom vehicle, locate the diagnostic road test procedure. Submit it to your instructor for approval before proceeding with the road test, then continue with this job sheet.

Your instructor must stamp or initial the box to the right before you can proceed with this job sheet.

Always have your instructor or mentor accompany you when conducting a road test. Do not attempt to drive the vehicle unless instructed to do so. Conduct the road test in an area with little or no traffic. Never exceed the legal speed limit during the road test. Always wear safety belts. You should record all observations made during the road test.

14. Begin the road test with brake pedal feel while vehicle is still. Based on your test procedure, to what speed do you accelerate? ______ Bring the vehicle to a complete stop using normal braking procedures. Look for signs of improper operation. What happened during your road test?

________________________________________________________________________

________________________________________________________________________

15. What is the next speed to accelerate to in the OEM test plan? ______

16. How do you apply the ABS brakes? ________________________________

________________________________________________________________________

17. How should ABS brake pedal feel when the ABS is working? ______

________________________________________________________________________
18. During your road test, did you find any symptoms that are listed in the OEM diagnostic symptom chart? List any symptoms found below:

________________________________________________________________________

________________________________________________________________________

19. Did both brake warning lamps remain off/on during the road test? _________

20. If the amber ABS warning lamp stays on, describe the cause and identify Diagnostic Trouble Code (s) (DTC).

________________________________________________________________________

________________________________________________________________________

**Task Summary**

Now that you have completed this NATEF task, can you think of anything (tools, information, knowledge etc.) that would have made this task easier?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
List a customer complaint together with the cause determined by this diagnostic/inspection task that might appear on a work order, and then list the NATEF task correction you would use to resolve the complaint.

**COMPLAINT:** ________________________________________________________________

1. Perform Checks/Inspect: ____________________________________________________

2. Referencing Bulletin: _______________________________________________________

**CAUSE:** ___________________________________________________________________

1. Diagnosis:  **USED THIS NATEF DIAGNOSIS TASK**

2. Operating as designed: ______________________________________________________

3. Cause identified as: ________________________________________________________

**CORRECTION:** __________________________________________________________________

1. Other Correction: __________________________________________________________

2. Correction Verified By: ______________________________________________________

Use this rubric to rate the completion of job sheet

1 = Demonstrates exposure/observation of the competency
2 = Applies the competency but only mastered a few essential attributes of the competency
3 = Capable of the competency but needs further practice
4 = Performs the competency satisfactorily
5 = Masters the competency

Instructor ____________________________ Mentor ______________________________