**CDX Distance Learning**

**Exercise #23**

**Horn Circuit Fault 1**

**Student Name:** Click or tap here to enter text.

Click or tap the check box next to the correct answer choice. Use the DMM in the horn fault [**animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_HornFault1_C1/BE_HornFault1_C1/BE_HornFault1_C1.html) to answer the following questions.

1. What is the battery’s voltage?
	1. 0 V [ ]
	2. 6 V [ ]
	3. 12 V [ ]
	4. 14 V [ ]
2. How much voltage is available to the “Hi” horn?
	1. 0 V [ ]
	2. 3 V [ ]
	3. 6 V [ ]
	4. 12 V [ ]
3. What is the resistance of the horn relay coil (pins 1 and 2)?
	1. 0 ohms [ ]
	2. 12 A [ ]
	3. 32 ohms [ ]
	4. 67 ohms [ ]
4. How much voltage is available to the “Lo” horn?
	1. 0 A [ ]
	2. 0 V [ ]
	3. 4 V [ ]
	4. 12 V [ ]
5. What is the voltage drop across the horn switch?
	1. 0 V [ ]
	2. 3 V [ ]
	3. 4 ohms [ ]
	4. 12 V [ ]
6. What is the voltage drop across the fuse?
	1. 0 V [ ]
	2. 3 V [ ]
	3. 4 ohms [ ]
	4. 12 V [ ]
7. What is the fault that is preventing the horn from operating?
	1. Open horn switch [ ]
	2. Faulty relay ground point [ ]
	3. Open fuse [ ]
	4. Dead battery [ ]

**Horn Circuit Fault 2**

Click or tap the check box next to the correct answer choice. Use the DMM in the horn fault [**animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_HornFault2_C1/BE_HornFault2_C1/BE_HornFault2_C1.html) to answer the following questions.

1. What is the battery’s voltage?
	1. 0 V [ ]
	2. 3 V [ ]
	3. 12 V [ ]
	4. 18 V [ ]
2. What is the voltage drop across the fuse?
3. 0 V [ ]
4. 2 V [ ]
5. 4 A [ ]
6. 12 V [ ]
7. What is the voltage drop across horn relay pins 1 and 2 (switch ON)?
8. 0 V [ ]
9. 1 V [ ]
10. 8 V [ ]
11. 12 V [ ]
12. What is the voltage drop across horn relay pins 3 and 5?
13. 0 V ☐
14. 3 V ☐
15. 6 V ☐
16. 12 V [ ]
17. What is the resistance of the horn relay contacts (pins 3 and 5)?
18. 0 ohms ☐
19. 20 ohms ☐
20. 100 ohms ☐
21. Infinity [ ]
22. What fault is preventing the horn from operating?
23. Open horn relay contacts [ ]
24. Open fuse [ ]
25. Bad horn switch [ ]
26. Open horn relay coil [ ]

**Horn Circuit Fault 3**

Click or tap the check box next to the correct answer choice. Use the DMM in the horn fault [**animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_HornFault3_C1/BE_HornFault3_C1/BE_HornFault3_C1.html) to answer the following questions.

1. What is the battery’s voltage?
	1. 0 V [ ]
	2. 4 V [ ]
	3. 6 V [ ]
	4. 12 V [ ]
2. What is the available voltage at horn relay pin 5?
3. 0 V [ ]
4. 2 V [ ]
5. 8 V [ ]
6. 12 V [ ]
7. Based on the condition of this circuit what would the technician observe, when the horn switch is operated?
8. The horn relay would click [ ]
9. The “Lo” horn would sound quietly [ ]
10. The horn switch would buzz [ ]
11. The horn relay would not click [ ]
12. What is the resitance of the fuse?
13. 0 V ☐
14. Infinity ☐
15. 0 ohms ☐
16. 67 ohms [ ]
17. What is the available voltage at pin 6 of the horn switch?
18. 0 V ☐
19. 5 V ☐
20. 7 A ☐
21. 12 V [ ]
22. What is the resistance of the horn switch (switch closed)?
23. 0 ohms [ ]
24. 5 ohms [ ]
25. 12 V [ ]
26. Infinity [ ]
27. What component needs to be replaced to repair the inoperable horn?
28. 10 A horn fuse [ ]
29. Horn relay [ ]
30. Horn switch [ ]
31. Splice S15 [ ]

**Horn Circuit Fault 4**

Click or tap the check box next to the correct answer choice. Use the DMM in the horn fault [**animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_HornFault4_C1/BE_HornFault4_C1/BE_HornFault4_C1.html) to answer the following questions.

1. When you close the horn switch, the relay does not close. What is the best place to start your testing?
	1. “Hi” horn pin 1 [ ]
	2. Horn relay pin 3 [ ]
	3. Splice S27 [ ]
	4. Horn relay pin 1 [ ]
2. What is the available voltage to the fuse?
3. 0 V [ ]
4. 3 V [ ]
5. 4 V [ ]
6. 12 V [ ]
7. What is the available voltage to the horn relay pin 1?
8. 0 V [ ]
9. 3 V [ ]
10. 4 V [ ]
11. 12 V [ ]
12. What is the available voltage to the horn relay pin 2?
13. 0 V [ ]
14. 3 V [ ]
15. 4 V [ ]
16. 12 V [ ]
17. What is the resistance across the horn switch?
18. 12 V ☐
19. 0 ohms ☐
20. 15 ohms ☐
21. Infinity [ ]
22. What is the fault in this circuit?
23. Shorted horn relay [ ]
24. Open horn switch [ ]
25. Open splice S27 [ ]
26. Open between horn relay and C158 [ ]

**Horn Circuit Fault 5**

Click or tap the check box next to the correct answer choice. Use the DMM in the horn fault [**animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_HornFault5_C1/BE_HornFault5_C1/BE_HornFault5_C1.html) to answer the following questions.

1. When you close the horn switch, the relay clicks. What is the best place to start your testing?
	1. Fuse [ ]
	2. Horn relay pin 3 [ ]
	3. Horn switch [ ]
	4. Horn relay pin 1 [ ]
2. What is the available voltage to the fuse?
3. 0 V [ ]
4. 3 V [ ]
5. 4 V [ ]
6. 12 V [ ]
7. What is the available voltage to the horn relay pin 2?
8. 0 V [ ]
9. 3 V [ ]
10. 4 V [ ]
11. 12 V [ ]
12. What is the amperage flow in the *control* side of the circuit?
13. 0.18 A [ ]
14. 0.25 A [ ]
15. 6 A [ ]
16. 12 A [ ]
17. What is the voltage to “Hi” horn pin 1?
18. 0 V [ ]
19. 3 V [ ]
20. 4 V [ ]
21. 12 V [ ]
22. What is the most likely fault in this circuit?
23. Open splice S15 [ ]
24. Open horn relay coil [ ]
25. Open horn switch [ ]
26. Open splice S27 [ ]

**Horn Circuit Fault 6**

Click or tap the check box next to the correct answer choice. Use the DMM in the horn fault [**animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_HornFault6_C1/BE_HornFault6_C1/BE_HornFault6_C1.html) to answer the following questions.

1. What is the battery’s voltage?
	1. 0 V [ ]
	2. 6 V [ ]
	3. 12 V [ ]
	4. 14 V [ ]
2. How much amperage is flowing in the *control* side of the circuit?
3. 0 A [ ]
4. 3 A [ ]
5. 6 A [ ]
6. 12 A [ ]
7. What is the resistance of the horn relay coil (pins 1 and 2)?
8. 0 ohms [ ]
9. 12 A [ ]
10. 32 ohms [ ]
11. 67 ohms [ ]
12. How much voltage is available to the “Lo” horn?
13. 0 A ☐
14. 0 V ☐
15. 4 V ☐
16. 12 V [ ]
17. How much voltage is available to the horn switch pin 6?
18. 0 V ☐
19. 3 V ☐
20. 4 ohms ☐
21. 12 V [ ]
22. What is the resistance across the horn switch?
23. 0 ohms [ ]
24. 20 ohms [ ]
25. 67 ohms [ ]
26. Infinity [ ]
27. What is the fault that is preventing the horn from operating?
28. Open horn switch [ ]
29. Faulty horn ground points [ ]
30. Open between horn switch and ground G-12 [ ]
31. Open relay coil [ ]

**Horn Circuit Fault 7**

Click or tap the check box next to the correct answer choice. Use the DMM in the horn fault [**animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_HornFault7_C1/BE_HornFault7_C1/BE_HornFault7_C1.html) to answer the following questions.

1. What is the battery’s voltage?
	1. 0 V [ ]
	2. 3 V [ ]
	3. 12 V [ ]
	4. 18 V [ ]
2. What is the voltage drop across the fuse?
3. 0 V [ ]
4. 2 V [ ]
5. 4 A [ ]
6. 12 V [ ]
7. What is the voltage at horn relay pin 2?
8. 0 V [ ]
9. 1 V [ ]
10. 8 V [ ]
11. 12 V [ ]
12. What is the voltage at pin 6 of the horn switch?
13. 0 V ☐
14. 3 V ☐
15. 6 V ☐
16. 12 V [ ]
17. What is the resistance of the Y-B wire between the fuse and horn relay?
18. 0 ohms ☐
19. 20 ohms ☐
20. 100 ohms ☐
21. Infinity [ ]
22. What fault is preventing the horn from operating?
23. Open horn relay contacts [ ]
24. Open Y-B wire [ ]
25. Bad horn switch [ ]
26. Open horn relay coil [ ]

**Horn Circuit Fault 8**

Click or tap the check box next to the correct answer choice. Use the DMM in the horn fault [**animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_HornFault8_C1/BE_HornFault8_C1/BE_HornFault8_C1.html) to answer the following questions.

1. What is the battery’s voltage?
	1. 0 V [ ]
	2. 3 V [ ]
	3. 12 V [ ]
	4. 18 V [ ]
2. What is the amperage flow in the “control” side of the circuit (switch ON)?
3. 0 A [ ]
4. 0.18 A [ ]
5. 4 A [ ]
6. 12 V [ ]
7. How much voltage is coming out of the fuse?
8. 0 V [ ]
9. 1 V [ ]
10. 8 V [ ]
11. 12 V [ ]
12. What is the voltage at horn relay pin 5?
13. 0 V ☐
14. 3 V ☐
15. 6 V ☐
16. 12 V [ ]
17. What is the voltage at horn relay pin 3?
18. 0 V [ ]
19. 3 V [ ]
20. 6 V [ ]
21. 12 V [ ]
22. What is the voltage at the “Lo” horn pin 1?
23. 0 V [ ]
24. 3 V [ ]
25. 6 V [ ]
26. 12 V [ ]
27. What is the resistance of the G-W wire between the horn relay and both horns?
28. 0 ohms [ ]
29. 3 ohms [ ]
30. 6 ohms [ ]
31. Infinity [ ]
32. What fault is preventing the horn from operating?
33. Open horn relay contacts [ ]
34. Open G-W wire [ ]
35. Bad horn switch [ ]
36. Open horn relay coil [ ]

**Horn Circuit Fault 9**

Click or tap the check box next to the correct answer choice. Use the DMM in the horn fault [**animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/BE/BE_HornFault9_C1/BE_HornFault9_C1/BE_HornFault9_C1.html) to answer the following questions.

1. What is the battery’s voltage?
	1. 0 V [ ]
	2. 4 V [ ]
	3. 6 V [ ]
	4. 12 V [ ]
2. What is the available voltage at horn relay pin 1?
3. 0 V [ ]
4. 2 V [ ]
5. 8 V [ ]
6. 12 V [ ]
7. Based on the condition of this circuit, what would the technician observe when the horn switch is operated?
8. The horn relay would click [ ]
9. The “Lo” horn would sound quietly [ ]
10. The horn switch would buzz [ ]
11. The horn relay would not click [ ]
12. What is the available voltage to pin 1 of the “Hi” horn?
13. 0 V ☐
14. 4 V ☐
15. 6 V ☐
16. 12 V [ ]
17. What is the available voltage at pin 6 of the horn switch?
18. 0 V ☐
19. 5 V ☐
20. 7 A ☐
21. 12 V [ ]
22. What is the voltage drop across horn relay pins 3 and 5 (relay closed)?
23. 0 V [ ]
24. 5 V [ ]
25. 7 A [ ]
26. 12 V [ ]
27. What component needs to be replaced to repair the inoperable horn?
28. 10 A horn fuse [ ]
29. Horn relay [ ]
30. Horn switch [ ]
31. Y-B wire [ ]