**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