

Instructor Guide



305: Troubleshooting and Repair of Highway Grade Crossings Module 1: Principles of Troubleshooting

Signals – Principles of Troubleshooting

Instructor's Guide



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Icons Used In This Guide

-  **REVIEW** slides
-  **ASK**
-  **CLASSROOM ACTIVITY**
-  **SMALL GROUP ACTIVITY**

-  **INDIVIDUAL ACTIVITY**
-  **WRITE**
-  **Multimedia**
-  **REFER** participants to

Agenda

Topic #	Topic Title	Duration
1	Overview	30 Minutes
2	The Process of Troubleshooting	10 Minutes
3	Four Steps in Troubleshooting	30 Minutes
4	Best Practices for Troubleshooting	20 Minutes
5	Charts & Diagrams Troubleshooting	10 Minutes
6	Field Trip	60 Minutes
7	Summary	20 Minutes
Total Time:		180 Minutes

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Overview

Purpose The purpose of this module is to:

provide an overview to troubleshooting signal systems equipment and machinery within the context of general troubleshooting and best practices.

Objectives

At the end of this lesson, the signal maintainer trainee will be able to:

- Examine the importance of troubleshooting
- Restate the troubleshooting process
- Identify troubleshooting steps
- Identify troubleshooting best practices
- Apply troubleshooting principles to some common signal systems problems and causes.

Materials

Mandatory Make sure you have the following

- PowerPoint Presentation
- Coursebook
- Quizzes
- Pencils
- Handouts:

Optional

You may also want the following for optional activities:

- Chalk board with chalk, large paper with marker, etc.
- Internet connection
- Lab, simulator

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Module Length: 180 min

Time remaining: 180 min

This section: 30 min (6 slides)

Section start time: _____

Section End Time: _____

DO

SAY

Materials Needed



REVIEW introduction slides

In your own words:

Welcome to the course on Principles of Signals Troubleshooting.

Advance slide

Riders depend on us.

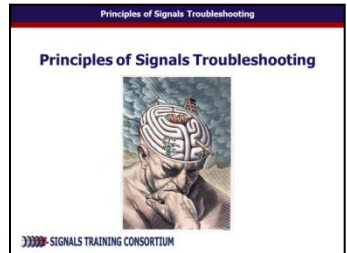
You have just arrived home to find that one light above your front door is fluctuating between being very bright to very dim. You go inside to find that your refrigerator is also not running.

Assuming that you may need to ultimately consult with an electrician, what other questions would you ask or what steps would you take to begin the troubleshooting process in order to begin to find a solution to this problem?

Discuss possible questions to ask and potential steps to take.

Advance slide

✓ PPT slides 1, 2



Instructor's Notes

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Module Length: 180 min

Time remaining: 140 min

This section: 30 min (10 slides) Section start time: _____ Section End Time: _____

DO

SAY

Materials Needed



REVIEW slides

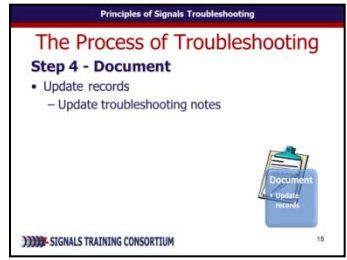
In your own words:

This is an important step especially when a problem is complex and various systems are involved and has been covered to some extent already in this module. As mentioned before, writing down notes about the problem and can help bring clarity to the problem itself along with a record of the process to consult with if needed later. If tests are run and the solution is not found, these notes then become a record to go back to and consult with so that one knows what has been tried and what has not been tried or considered in solving the problem. Writing down details regarding the problem thus becomes critical in the troubleshooting process.

If one must stop for some reason before a solution is found, then there is also a record to review before beginning again therefore preventing the possibility of repeating steps. Additionally, if more than one person is involved in the process, notes can be helpful in the communication process.

Advance Slide.

✓ PPT slide 15



Instructor's Notes
