Design Document

Block Schematic Diagram (BSD) Training For Xerox Service Personnel and Dealers

Submitted by:

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Executive Summary

The problem addressed by this training solution is Xerox products no longer include directed troubleshooting through the use of Repair Analysis Procedures (RAPs) and other troubleshooting aids that were common to most copiers and printers in the past.

This design document outlines the development and sequencing of content for a cloud based training program for Xerox service technicians and dealers servicing multiple Xerox products including xxxxx, xxxxx, and xxxxx.

The proposed learning solution will be designed to teach and/or refresh basic troubleshooting knowledge and skills using Block Schematic Diagrams (BSD) or documentation requiring a new skill set not possessed by most technicians hired since the late 1990s and some dealer reps. The program would also apply to technicians in need of refresher training on the presenting system and circuit diagnostics in the new Service Guidance System format.

We propose assembling a team consisting of a Service Documentation Specialist with extensive Xerox experience, and an instructional developer / multimedia developer. The team, working with Xerox Program Management and Subject Matter Experts (SMEs) will collaborate to produce the final cloud-based training program.

This design document is based on the information contained in the Block Schematic Diagram Training Statement of Work (SOW) / Requirements Document dated September 2019. Changes in requirements during the course of the project will affect the timeline and cost.

Performance Objectives

Terminal Objective

Given the BSD Service Training link and a suitable platform, the learner will be able to access the information provided online and, after completing the training modules, answer the questions on the mastery test with a score of 80% or better. The test results will be submitted to Xerox LMS so that learning histories will be properly updated.

Enabling Objectives

Upon completion of the BSD Service Training program, the learner will be able to:

- Describe chain differences
- Describe group functions inside each chain
- Describe the monitoring function through a chain to a specific component

- Explain symbols used in BSD (plug and jack, isolated ground, earth ground vs frame ground)
- Describe signal-naming conventions used in BSDs (High, Low, and Notes)
- Identify how and when Component Control Codes and Fault Codes/Status Codes are used within BSDs
- Describe Power Block information
- Troubleshoot with a BSD to Wirenet and back to a BSD

Content Outline

The product will be an online training program that will provide a self-paced, independent study learning event for Xerox service technicians and dealers providing service to Xerox products. The training program will be developed and organized into the following sections / modules:

Module 1: Main Menu / Table of Contents / Pretest
Module 2: Documentation Symbology and Conventions
Module 3: Chains
Module 4: Component Control Codes and Fault Codes / Status Codes usage within BSDs
Module 5: Power Block Information
Module 6: Troubleshooting
Module 7: Mastery Test

Module Descriptions

Module 1: Main Menu / Table of Contents / Pretest — 30 minutes

The learner will initially be presented with the following information:

- Competency Check List
- Option to take the Pretest

If the learner cannot successfully complete the Pretest with the minimally required 80% correct score, they will access the learning modules and resources in the following ways:

- By selecting a module or resource from the table of contents
- By selecting a module or resource from the list of learning prescriptions generated by the pretest

Module 2: Documentation Symbology and Conventions — 30 minutes

This module describes and illustrates the various naming conventions and symbols used in the BSDs and will:

- Explain symbols used in BSD (plug and jack, isolated ground, earth ground vs. frame ground)
- Describe signal-naming conventions used in BSDs (high, low, and notes)

There will be a test presented at the conclusion of the module.

Module 3: Chains — 45 minutes

This module presents material related to the BSD Chains. Topics covered in this module are:

- What is a chain / chain differences
- Group functions within a chain
- Following the monitoring function through a chain to a specific component

There will be a test presented at the conclusion of the module.

Module 4: Component Control, Fault, and Status Code Usage within BSDs — 45 Minutes

This module presents and explains how to correctly interpret and use the available component control, fault, and status codes presented by the machine and their diagnostic function within a BSD. Topics covered in this module are:

- What are component control, fault, and status codes
- What differentiates one type of code from another
- How to use various codes to deductively chose an approach to providing a service solution

There will be a test presented at the conclusion of the module.

Module 5: Power Block Information — 15 minutes

This module presents information on the AC and DC electrical diagrams in the BSDs. The module explains how to correctly identify and safely locate the various power lines contained within the machine. The following data will be presented:

- Main power on (AC distribution)
- DC power generation (24, 12, 5 and 3.3 VDC)

There will be a test presented at the conclusion of the module.

Module 6: Troubleshooting — 60 minutes

This critical module demonstrates how to correctly move from a BSD to a Wirenet, or from a Wirenet back to a BSD. Methodology for performing the correct interpretation will be presented for the following activities:

- BSD to Wirenet

- Wirenet to BSD

There will be a test presented at the conclusion of the module.

Module 7: Mastery Test — 30 minutes

The Mastery Test will be administered at the end of the learning program. If the requirement of 80% correct is achieved, the results will be logged and transmitted to the Xerox LMS to update the learner's history. If the learner fails to achieve a score of 80% correct, they will be directed to a particular module by failure of a section of the mastery test.

Development Schedule

The schedule is based on the information contained in the Block Schematic Diagram Training SOW dated September 2019. The schedule could change based on changing requirements.

10/28/19 Award of bid and confirmation of billing process via Xerox Purchase Order

11/04/19 Begin project – kickoff meetings with Xerox and developers to discuss design elements and confirm objectives (teleconference)

10/06/19 Commence development

11/11/19 Weekly teleconference review / revision sessions commence

02/03/20 Pilot test

02/17/20 Final Review

02/24/20 Deliver final training program

Communication and Reporting

Communication with Xerox will be ongoing. An initial expectations meeting with appropriate Xerox personnel will be confirmed at the start of the project to ensure all customer requirements are restated and understood.

At the discretion of the Program Development Team, the cadence of the weekly teleconference meetings can be modified as needed. Module drafts will be uploaded to the Xerox intranet for review as they are developed, independent of the review sessions.

It will be the responsibility of the Xerox Program Manager to identify subject matter experts that can be available for consultation as necessary.

Testing

An array of test questions will be developed for each competency. The testing will be programmed so that test questions are selected at random for both the pretest and the mastery test. The number of questions required for each competency during the test will be dependent on the complexity of the competency, ensuring that the student has adequate knowledge of the required concepts.

The questions will be presented to the learner in the form of multiple choice or matching.

The pretest is an elective test. Learners who elect to take the pretest and pass it can gain credit for successful completion of a learning module.

If less than 80% of the questions for a specific competency are answered correctly, the learner will be required to review a module or section of a module and take (or retake) the mastery test for that module. A competency checklist page will be available that will list the required competencies and put a check mark next to the ones that have been successfully completed, giving the learner a visual display of progress. The “unchecked” competencies can be selected and the learner will be brought to the appropriate module to review the material and retake the mastery test. The learner will have completed the program when they have answered at least 80% of the questions correctly for all modules (pretest or mastery test), and all competencies are “checked off” on the competency checklist.

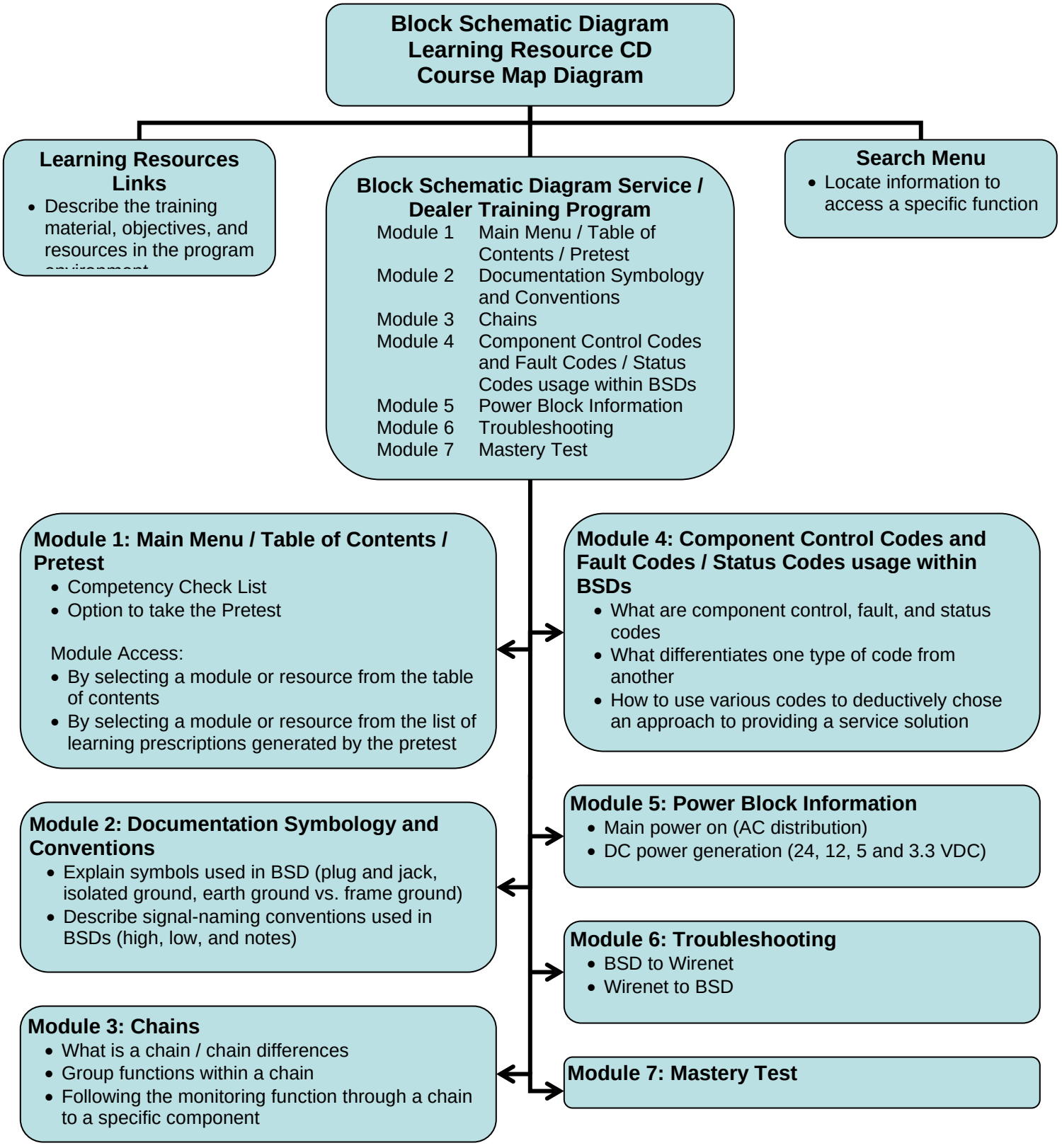
Pilot Testing

Pilot testing will be conducted when the training is completed. The Xerox Program Team and SMEs will review materials as they are developed and will take part in, or determine who will take part in the pilot tests. The learners for the pilot test may also be taken from the CSE population.

Program Presentation Treatment

The program will be developed in a style consistent with, and level of complexity similar to, the sample Xerox xxxx / xxxx Production Printing System provided with the BSD Training SOW.

Our expectation is to provide the learner with an interactive experience. The program will utilize animated zooms, wipes, along with movement of various graphics or photos. Appropriate audio cues will also be implemented throughout the program to help maintain an active level of interest and attention by the learner.


Block Schematic Diagram
Learning Resource CD
Course Map Diagram
Learning Resources Links
Describe the training material, objectives, and resources in the program
Block Schematic Diagram Service / Dealer Training Program
Module 1 Main Menu / Table of Contents / Pretest
Module 2 Documentation Symbology and Conventions
Module 3 Chains
Module 4 Component Control Codes and Fault Codes / Status Codes usage within BSDs
Module 5 Power Block Information
Module 6 Troubleshooting
Module 7 Mastery Test
Search Menu
Locate information to access a specific function
Module 1: Main Menu / Table of Contents / Pretest
Competency Check List
Option to take the Pretest
Module Access:
By selecting a module or resource from the table of contents
By selecting a module or resource from the list of learning prescriptions generated by the pretest
Module 2: Documentation Symbology and Conventions
Explain symbols used in BSD (plug and jack, isolated ground, earth ground vs. frame ground)
Describe signal-naming conventions used in BSDs (high, low, and notes)
Module 3: Chains
What is a chain / chain differences
Group functions within a chain
Following the monitoring function through a chain to a specific component
Module 4: Component Control Codes and Fault Codes / Status Codes usage within BSDs
What are component control, fault, and status codes
What differentiates one type of code from another
How to use various codes to deductively chose an approach to providing a service solution
Module 5: Power Block Information
Main power on (AC distribution)
DC power generation (24, 12, 5 and 3.3 VDC)
Module 6: Troubleshooting
BSD to Wirenet
Wirenet to BSD
Module 7: Mastery Test