



2026 ADVANCED APPARATUS PROGRAM

Fletcher-Reinhardt Co. / Fletcher-Reinhardt Service Co.
Brian Hunter / Kevin Reinhardt / Alyx Hedgpeth



Day 1

1:00 PM

POWER SYSTEMS BASICS

Fletcher-Reinhardt Company classroom.

Electrical Values (Current, Voltage, Power Factor, etc.)

Vector Diagrams

Capacitor and System Review

Need for Capacitors

Capacitor Safety

Capacitor Demo Board

2:45 PM

BREAK

3:00 PM

REGULATOR REVIEW

Need for voltage support

Demo Polarity, Buck and Boost Voltage

External Regulator

Voltage Level – Bandwidth – Time Delay

LCD and Voltage Limit

Step Position Indicator and Add Amp

Regulator Design

Ratio Correction

Reverse Power Flow

(Dead band, operating modes)

4:45 PM

END OF DAY

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(continued)

Day 2

8:00 AM **REGULATOR REVIEW - CONTINUED**
Fletcher-Reinhardt Company Classroom

9:45 AM **Fletcher-Reinhardt Service Company**

Hands-on demonstrations for various regulator control units. The following controls will be featured:

- Siemens MJ-X
- Siemens MJ-XL
- Siemens MJ-3A
- General Electric ML-32
- Cooper CL-5E
- Cooper CL-6B
- Cooper CL-7
- Cooper CL-7 Multiphase
- SEL 2431

A packet containing additional information and exercises will be provided.

12:00 **LUNCH at Fletcher-Reinhardt Company classroom / tour of FR and FRSC**

1:00 PM **Fletcher-Reinhardt Service Company**

Finding neutral position and discussion about by-passing regulators.
(High Voltage area)

1:30 PM **SWITCHING AND TESTING REGULATORS**

2:30 PM **BREAK**

2:45 PM **RECLOSERS**
Fletcher-Reinhardt Service Company

Recloser Demo (OCR test area)
Three Shot fuse demo (just for fun)
Single Phase
Single phase with sequence coordination
Triple-Single w/ Form 6
Demo ground trip with single phase trip
Three phase NOVA w/ Form 6

4:30 **END OF DAY**

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(continued)

Day 3

8:00 AM Fletcher-Reinhardt Company Classroom

Form 3A and 4C Control

Battery

Operating Panel

Form 4D, Form 5, Form 6, and Form 7 Control

Features

Battery

Installation

Potentials

Operating Panel

Programming

Computer input

9:45 AM BREAK

10:00 AM FORM 6 CONTROL (Hands-On)

Operating Panel

Programming

Computer input

11:30 AM FINAL REVIEW / TEST

12:00 PM END OF CLASS