

145/242kV Type PA Dead Tank Breaker Maintenance and Overhaul Training Class Level 4 Field Service Engineer Training

DTB TRAINING CENTER GREENSBURG, PA– COURSE DESCRIPTION

Hitachi Energy High Voltage Service is pleased to offer the following Five (5) day training course consisting of classroom and hands-on instruction in Hitachi Energy's Greensburg, PA Training Center. The course is aimed to provide a general understanding of maintenance and Overhaul procedures of 145 / 242 type PA power circuit breakers. During the classroom portion, experienced instructors will share their knowledge and expertise through interactive, engaging classroom instruction. To add further understanding, each main category of instruction will be followed by hands-on activity where students can interact with the breaker first-hand.

PREPARED BY	STATUS	SECURITY LEVEL		
Art Schultz	Approved	Internal		
APPROVED BY	APPROVAL DATE			
Marcio Schmitt	2023-03-23			
OWNER	DOCUMENT KIND			
Head of Training Function	Agenda			
TITLE				
DTB-L4-145PA_145&242PA_242-Training Agenda				
OWNING ORGANIZATION	DOCUMENT ID	REV.	LANG.	PAGE
	2GHE011218	A	en	1/4
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Course goal:

The course is an in-depth training and teaches pro- found knowledge on the commissioning, troubleshooting and overhaul procedures of the 145/242 PA DTB.

Who would benefit:

- ❖ Hitachi Energy Technicians/ Engineers
- ❖ Hitachi Energy Channel Partners

Included:

- ❖ DTB information manuals
- ❖ 5 continental breakfasts
- ❖ 5 lunches
- ❖ 1 group dinner
- ❖ certificate of completion

Main learning objectives:

- ❖ Understand the functions of all DTB components
- ❖ Perform SF6 Gas handling Procedures of DTB
- ❖ Perform a complete overhaul of DTB following written procedures.
- ❖ Perform Testing of DTB and make necessary adjustments to ensure optimal performance of DTB

Certification:

A confirmation will be issued after successful participation in this course, as part of the certification process.

Within a 12 months period, an on-site assessment must be carried out along with a final review to complete certification.

Prerequisites:

- ❖ L3 training or experience on DTB/LTB
- ❖ Ability to read and speak English
- ❖ Understand wiring diagrams and drawings of control circuits
- ❖ On-site experience on DTB Installation and Commissioning procedures.
- ❖ Attended the company required Health & Safety Training.
- ❖ Ownership of PPE
- ❖ Computer skills with Admin rights

Duration:

5 days

Enrolments:

Send your training request to:

us-dtb_training@hitachienergy.com

STATUS	SECURITY LEVEL	DOCUMENT ID	REV.	LANG.	PAGE
Approved	Internal	2GHE011218	A	en	2/4

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Day	Subject
1	Introduction to Breaker Fundamentals (Theory/Classroom) <ul style="list-style-type: none"> ❖ Breaker safety ❖ Switching ❖ Grounding ❖ Pole assembly ❖ Removal of bushings ❖ Bushing lifting points ❖ Through-rod connection ❖ Maintenance procedures /schedules
	145 and 242 PA Interrupter theory and maintenance / Interrupter Removal <ul style="list-style-type: none"> ❖ Interrupter overview – SL & SP ❖ Contact inspection ❖ Interrupter installation
2	Operating Mechanism AHMA-8/11 & HMB-8/11 (Classroom & Practical) <ul style="list-style-type: none"> ❖ Principles of operation ❖ Hydraulic mechanism ❖ Maintenance procedures / schedules ❖ Charging system ❖ Trip / close coils ❖ Trip / close latches ❖ Auxiliary switches ❖ Duty cycle ❖ Troubleshooting ❖ Spare parts
	145 and 242 PA Interrupter Maintenance/ seal replacement Interrupter Bushing Removal (Practical/Hands-on) <ul style="list-style-type: none"> ❖ Pre-test of SF₆ gas ❖ Reclaiming of SF₆ Gas ❖ Operation of SF₆ Gas cart ❖ Seal replacement ❖ Bushing removal ❖ Contact inspection ❖ Interrupter Removal/installation ❖ Cleaning procedures
3	

STATUS	SECURITY LEVEL	DOCUMENT ID	REV.	LANG.	PAGE
Approved	Internal	2GHE011218	A	en	3/4

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Breakers & SF6 gas
(Theory & Practical)

4

- ❖ What is SF6
- ❖ Vacuuming of breaker
- ❖ Filling the breaker
- ❖ SF6 fittings
- ❖ Sealing Systems
- ❖ Corrosion Prevention of Flanges
- ❖ SF6 By-products

Installation and Commissioning
(Theory & practical)

5

- ❖ Electrical Controls and Wiring Diagrams
 - ❖ Alarms and Lockouts
 - ❖ Mechanism Limit Switch Testing
 - ❖ Breaker Timing / Velocity Measurement
 - ❖ Leak Detection
 - ❖ Post Test of SF6 (Moisture/Purity Test)
 - ❖ CT Ratio, Polarity and Megger
 - ❖ Micro Ohm Test of Main Contacts
 - ❖ Course Review
 - ❖ Knowledge check
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