Intro to Brazing and Soldering

Phase 5 BLOCK 4

Phase 5 — Block 4 Overview

Block 4 introduces the foundational brazing and soldering techniques used throughout refrigeration system service and repair. You'll develop an understanding of flame control, capillary action, joint preparation, nitrogen purging, and proper material selection. The concepts and skills presented in this block serve as the foundation for safe tubing installation, component replacement, and refrigeration piping procedures throughout Phase 5.

Block Completion Requirements

Access *Absorb* resources through DRW platform & contact a mentor/supervisor for topic assistance. This Mastery is instructor-led + must be completed with a Senior/Master Technician with extensive refrigeration systems experience.

1. ☐ Review all *Absorb* resources
2. ☐ Complete all *Articulate* questions
3. ☐ Complete the **Instructor-led** *Mastery*

Absorb Resources

Refer to the DRW Learning Block online for the complete list of assigned resources for this block. Topics to review include:

REFR. SERVICE SKILLS

- Brazing Fundamentals
- Soldering Fundamentals
- Capillary Action
- Joint Prep & Materials Selection

SUPPLEMENTAL

- Assigned Videos
- Brazing Demonstrations
- Nitrogen Purging
- Flame Control & Torch Op.

AST580 TRAINING MATLS.

- Westchester Braze Training PowerPoint

Resources

Key Competencies

By completion of this Learning Block, technicians should demonstrate competency in:

- ☐ Flame Safety & PPE Requirements
- ☐ Torch Operation & Flame Types
- ☐ Capillary Action Principles
- ☐ Copper Tubing Preparation
- ☐ Brazing + Soldering Fundamentals
- ☐ Filler Metals & Flux Selection
- ☐ Copper-to-Copper Connections
- ☐ Dissimilar Metal Connections
- ☐ Nitrogen Purging Practices
- ☐ Component Protection Techniques
- ☐ Overheating Prevention
- ☐ Joint Quality & Safe Piping Practices

Competencies

Mastery

Instructor-Led Skills Session
Copper Brazing and Soldering

*Complete **Assessment Tasks** with an instructor, then return to DRW platform to document:*

- **Safety** — Review flame safety, PPE requirements, and firewatch responsibilities.
- **Preparation** — Clean + prepare copper tubing + fittings for brazing and soldering.
- **Materials** — Identify the purpose and proper use of flux, solder, and brazing rods.
- **Torches** — Demonstrate torch operation and identify common flame types.
- **Practice** — Complete 4 brazing + soldering exercises using copper tubing + fittings.
- **Development** — Discuss best practices for cont. safe practice + skill improvement.

Name: _____ **Phase Start Date:** _____

DRW

Brazing and Soldering of Dissimilar Metals

Phase 5 BLOCK 5

Phase 5 — Block 5 Overview

Block 5 builds upon brazing + soldering fundamentals by focusing on dissimilar metal connections commonly found in refrigeration systems. You'll develop an understanding of proper material selection, component protection, overheating prevention, and nitrogen purging techniques. The concepts and skills presented in this block support safe refrigeration piping repairs, component replacement, and field service procedures throughout Phase 5.

Block Completion Requirements

Access *Absorb* resources through DRW platform & contact a mentor/supervisor for topic assistance. This Mastery is instructor-led + must be completed with a Senior/Master Technician with extensive refrigeration systems experience.

1. ☐ Review all *Absorb* resources
2. ☐ Complete all *Articulate* questions
3. ☐ Complete the **Instructor-led** *Mastery*

Absorb Resources

Refer to the DRW Learning Block online for the complete list of assigned resources for this block. Topics to review include:

ASSIGNED VIDEOS

- Brazing with Dissimilar Metals

TECH DIRECT ARTICLES

- Brazing Techniques w/Copper Tube
- Proper Brazing Procedure

REFR. SERVICE SKILLS

- Dissimilar Metal Brazing

Resources

Key Competencies

By completion of this Learning Block, technicians should demonstrate competency in:

- ☐ Dissimilar Metal Brazing
- ☐ Material Selection & Compatibility
- ☐ Brazing Rod Selection
- ☐ Flux Selection & Application
- ☐ Copper-to-Copper Connections
- ☐ Dissimilar Metal Connections
- ☐ Nitrogen Purging Practices
- ☐ Component Protection Techniques
- ☐ Overheating Prevention
- ☐ Joint Inspection & Quality Verification
- ☐ Brazing vs. Soldering Applications
- ☐ Safe Refrigeration Piping Practices

Competencies

Mastery

Instructor-Led Skills Session
Brazing and Soldering of Dissimilar Metals

*Complete **Assessment Tasks** with an instructor, then return to DRW platform to document:*

- **Safety** — Review flame safety, PPE, firewatch duties + safe handling of brazing equip.
- **Preparation** — Clean + prep tubing + fittings for soldering + brazing applications.
- **Materials** — Identify proper solder, brazing rods, fluxes + fillers for copper-to-copper & dissimilar metal joints.
- **Nitrogen Purging** — Demonstrate proper nitrogen purge setup + explain its purpose during brazing.
- **Practice** — Complete (3) soldering and brazing exercises involving dissimilar metal connections.
- **Development** — Discuss overheating prevention, component protection & skill development.

Name: _____ **Phase Start Date:** _____

DRW

Refrigerant

Phase 5 BLOCK 6

Phase 5 — Block 6 Overview

Block 6 introduces the refrigerant service procedures used to safely recover, test, evacuate, and charge refrigeration systems. You'll develop an understanding of refrigerant types, A2L safety, leak detection, pressure testing, and the proper use of recovery machines, vacuum pumps, gauges, and charging equipment. The concepts and skills presented in this block support safe refrigeration service, system repairs, and field diagnostics throughout Phase 5.

Block Completion Requirements

Access *Absorb* resources through DRW platform & contact a mentor/supervisor for topic assistance. This Mastery is instructor-led + must be completed with a Senior/Master Technician with extensive refrigeration systems experience.

1. ☐ Review all *Absorb* resources
2. ☐ Complete all *Articulate* questions
3. ☐ Complete the **Instructor-led** *Mastery*

Absorb Resources

Refer to the DRW Learning Block online for the complete list of assigned resources for this block. Topics to review include:

REFR. SERVICE SKILLS

- Refrigerant Recovery
- Leak Detection & Pressure Testing
- Vacuum & Evacuation Procedures
- Refrigerant Charging

LMS REFRIGERATION

- A2L Safety
- Refrigerant Fundamentals
- Refrigerant Service Procedures

SUPPLEMENTAL

- Service Equipment Training
- Tech Direct Articles
- Manufacturer Resources

Resources

Key Competencies

By completion of this Learning Block, technicians should demonstrate competency in:

- ☐ Refrigerant Types & Applications
- ☐ A2L Safety Fundamentals
- ☐ Refrigerant Recovery Procedures
- ☐ Recovery Machine Operation
- ☐ Manifold Gauge Operation
- ☐ Pressure Testing with Nitrogen
- ☐ Leak Detection Techniques
- ☐ Vacuum Pump Operation
- ☐ System Evacuation Procedures
- ☐ Refrigerant Charging Procedures
- ☐ Refrigerant Scale Usage
- ☐ Refr. Documentation & Best Practices

Competencies

Mastery

Instructor-Led Skills Session

Refrigerant: Recovery, Pressure Testing, Vacuum & Charging

*Complete **Assessment Tasks** with an instructor, then return to DRW platform to document:*

- Refrigerant Fundamentals – Discuss refrigerant types, industry transitions, A2L refrigerants + key safety considerations.
- Recovery Procedures – Demonstrate refrigerant recovery, equipment operation, and proper documentation.
- Pressure Testing & Leak Detection – Show proper use of nitrogen regulators, tanks, valves + leak detection procedures.
- Vacuum Procedures – Show proper vacuum pump setup, evacuation procedures + explain purpose of system evacuation.
- Charging Procedures – Demonstrate proper refrigerant charging techniques using scales and charging equipment.
- Safety & Best Practices – Discuss equipment monitoring, unattended operation, and safe refrigerant handling.
- Hands-On Practice – Perform recovery, pressure testing, evacuation, and charging procedures under instructor guidance.

Name: _____ **Phase Start Date:** _____

DRW