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This is a special information book for readers who already have resistance welding experience. It is not a technical how-to book or a specification for resistance welding safety, arc, gas, or any other kind of welding. Due to the variety of resistance welding environments and changes to safety practices and equipment designs, the correctness of the book cannot be guaranteed. Safety is a broad subject and cannot be completely covered in any one source such as this. Therefore the purchaser or reader of the book is hereby notified that the author cannot guarantee or make any claim of accuracy of the book or that it covers all possible safety perils around resistance welding. A table of contents for disclaimers and warnings is on p. xvi. If these warnings, disclaimers, or other items in the book are unacceptable, you may return this book for a refund. Please enclose proof of purchase.

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CHAPTER 1
INTRODUCTION

This book is all about operator safety around resistance welding. It contains information for resistance welding operators, maintenance people, supervisors, engineers, consultants, contractors, and machine builders. Some of it is technical, but most of it is discussed in layman terms.

1-1. What if it happened to you?

Assume that you are a spot weld operator. Imagine yourself at work. You look down at your watch; it is the beginning of the shift. You have the rest of your shift ahead of you. You walk across a damp factory floor to the weld tool. The light above your head flickers, the sound of your steel toed shoes creak with every step. In the background you can hear the sound of the machines starting up and workers pouring in, chatting amongst themselves. You reach for a part that was left in the weld tool, and suddenly you feel your body tense with excruciating pain, then you black out into oblivion. You're dead.

If this were to ever happen to you or someone you knew there would always be the question "did this have to happen?" The
answer is no. The cause of this mishap is an electrical fault in the machine, together, with an absence or breakdown of an electrical protection device and a failure in shift-to-shift communication. It is not complex and is in the many subjects to be discussed in this book.

1-2. Odds of making a mistake

Many situation comedies on TV and in movies have depicted people making mistakes for entertainment purposes. For every 100 moves that you make in real life, how many times do you make a mistake? Drop something, bump your head, trip, or forget something? Think of 100 people that you know. How many have been in an auto accident? How many have been injured or died from one of these accidents?

Now imagine the next 100 moves that you do around an industrial work environment like resistance welding. What are the chances of a mistake as frequent as an auto accident? How about the next set of 100 moves? What can be the cost of that mistake; a minor or serious injury, someone’s life, or your life?

1-3. Safety dysmorphic disorder

Body dysmorphic disorder (BDD) is a mental ailment. It is when a person sees himself in some unusual manner such as too skinny no matter how overweight he is, or too fat no matter how skinny he is. A person can have safety dysmorphic disorder (SDD, a term made up in this book; see p. 230). An ailment where his work area is dangerous and he sees it as safe, or even the alternate where his work area is safe, and he sees it as dangerous.

Much of the information is presented as a discussion of known safe practices around resistance welding machines to reinforce safety. A lot of information is provided so that a work environment can be re-evaluated to maintain safety. Hopefully, an unrealistic SDD is not developed in a worker from misunderstandings, and a realistic attitude about safety is instead maintained.
1-4. Resistance welding background

Resistance welding is a low cost process used to join sheet metal. A lot of jobs have been made possible by the low cost characteristics of resistance welding to make strong and reliable products. It has many cost saving benefits over other joining methods, such as no extra filler metal or fasteners, and it is easy to do. The world has enjoyed many resistance welded products. Automobile bodies, appliances, computer chassis, furniture, and many aerospace frames are examples. With proper provisions resistance welding is also a relatively safe process.

1-5. Scope of the book

It is applicable to many environments:
- production plants that use resistance welding
- resistance welding machine and automation builders
- resistance welding component suppliers
- job shops that do resistance welding
- resistance welding research and development facilities
- education, library, government, and information facilities.

Several subjects about operator safety are discussed. They are about resistance spot, seam, and projection welding for industrial sheet metal. Some of the discussion may apply to other forms of resistance welding as well (such as flash and upset butt welding).

This book is written around manufacturing in the USA, although much of the discussion applies to manufacturing in other countries that use similar utilities and machines.

Technical information is based on common industry specifications, standards, and work practices. In the event that your situation deviates from common practices, you should keep this in mind when reading this book as the information may or may not apply. Narratives are stories taken from experience and in some cases second hand information.
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