

Contents

Publisher's Message	xi
Getting Started	xv
The Purpose of This Book	xv
What This Book Is Based On	xv
Two Ways to Use This Book	xvi
How to Get the Most Out of Your Reading	xvii
Overview of the Contents	xix
 Chapter 1. About TPM and OEE	 1
Chapter Overview	1
What Is TPM?	2
What Is OEE and Why Is It Important?	4
Quantity Over Time Is Only Part of OEE	4
Effectiveness Focuses on the Equipment, Not the Person	5
The Purpose of Measurement Is Improvement	5
The Role of the Shopfloor Team in Using OEE	6
In Conclusion	7
Summary	7
Reflections	8

Chapter 2. Understanding Equipment-Related Losses	9
Chapter Overview	9
Losses Reduce Overall Equipment Effectiveness	10
Visualizing OEE and the Losses	12
Availability	12
Performance	13
Quality	13
Availability: Downtime Losses	14
Failures and Repairs	14
Setup Time	14
Other Losses to Availability	15
Performance: Speed Losses	18
Reduced Operating Speed	18
Minor Stoppages	18
Quality: Defect Losses	20
Scrap and Rework	20
Startup and Reduced Yield	20
In Conclusion	22
Summary	22
Reflections	23
 Chapter 3. Measuring OEE	 25
Chapter Overview	25
Closing the Feedback Loop	26
Collecting OEE Data	26
Defining What to Measure	26
Making Data Collection Simple	29
Processing OEE Data	33
The OEE Calculation	33
Storing OEE Data	34
Reporting OEE Results	35
In Conclusion	37
Summary	37
Reflections	38

Chapter 4. Improving OEE	39
Chapter Overview	39
5 Why Analysis	41
Autonomous Maintenance	42
Focused Equipment and Process Improvement	44
Quick Changeover	46
Stage 1: Separate Internal and External Setup	46
Stage 2: Convert Internal Setup to External Setup	47
Stage 3: Streamline All Aspects of Setup	47
ZQC (Mistake-Proofing)	48
Poka-Yoke Systems	49
P-M Analysis	50
In Conclusion	54
Summary	54
Reflections	56
 Chapter 5. Reflections and Conclusions	 57
Chapter Overview	57
Reflecting on What You've Learned	58
Opportunities for Further Learning	59
Conclusions	59
Additional Resources on TPM, OEE, and	
Equipment-Related Losses	60
Training and Consulting	60
Packaged Education and Support	60
Conferences and Public Events	62
Newsletter	63
Website	63
 About the Productivity Development Team	 65