Major changes in the 4th edition of ROC

General changes

By changing the file format for line diagrams, they appear now in better printing quality. In the reference list, one new reference was added, and several references were updated to newer editions.

Chapter 1

The classification of railway systems was modified a little by adding a distinction between heavy and light rail systems. The heavy rail category contains standard railways, heavy mass transit (subways etc.), and industrial railways.

The explanation of North American yard limits was extended with a new picture included.

Chapter 3

The section on block systems was reorganised. Different from the traditional terms used in some old national systems, but according with the actual definitions in many recently issued international guidelines, the term block system is now only used for systems with positive locking of signals. For this reason, telephone and telegraph block working is no longer part of the section on manual block but was moved to a separate section. When explaining the block control logic, the diagram on protection of following movements was modified. Signal control was eliminated, so, as in the diagram on protecting opposing movements, it concentrates now on the pure functionality of the block system.

The section absolute and permissive working on automatic block lines was extended by a more detailed discussion on degraded-mode operations in these two block working principles.

In the ATP section, a paragraph on the Chinese Train Control System (CTCS) was added. With ETCS, CTCS, and PTC, all

communication-based train control systems used today in mainline operations worldwide are now covered.

Chapter 4

There is now a new section on the handling of interlocking failures.

Chapter 5

There is now a more comprehensive explanation of the background behind analytical methods and simulation and of the strategies to apply these methods. In particular, the topic of the different estimation of waiting times is addressed, since an understanding of this issue is crucial for a sound application of these methods.