

# High Performance Regenerative Receiver Design

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*There have been several popular Regen projects in recent QST's and ARRL Handbooks. Look at the design process and progress; then build one—or both—of the receivers described.*

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By Charles Kitchin, N1TEV

**M**any hams have tried regenerative receivers with mixed results. Some people are quite attached to "regens," while others consider them only suitable for beginner experimentation.

I have spent several years researching this subject and have come away with a great respect for the technical knowledge possessed by the "old-timers" of the 1920s and '30s. Unfortunately, much of this knowledge has been forgotten. Many significant discoveries, such as the "throttle"-capacitor regeneration control are unknown to most modern homebrewers.

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This article will show that, if properly designed, a modern regen is quite capable of direct-conversion or superheterodyne-level performance, although it does require greater operator skill. Attention to a few simple details can provide an excellent receiver for ham or general-coverage shortwave use. For beginners and veterans alike, studying, building and using regenerative circuits can add new interest, excitement and fun to the radio hobby.

## A Brief History

The regenerative circuit was used in both commercial and ham receivers in the 1920s until the early 1930s. It was the standard ham receiver during this period, and a great deal of experimental work was done to optimize its performance. As the great depression slowly ended, the use of the regen de-

clined, because many people could then afford to buy commercial superheterodyne receivers.

Hams continued to use regens, usually home-brewed, through the rest of the 1930s. Although better components were then available, regens of the 1940s and '50s had been reduced to introductory sets for beginners—with generally poor performance.

By the 1960s and '70s, regenerative circuits had been replaced by the now popular direct-conversion receiver.

## Regeneration Basics: What's Really Happening Here?

Fig 1 shows the basic regenerative circuit, discovered by Edwin Howard Armstrong<sup>1</sup> in 1914.

Fig 2 shows a modern equivalent

<sup>1</sup>Notes appear on page 36.

# High Performance Regenerative Receiver Design

**Padhraic Smyth**



## **High Performance Regenerative Receiver Design:**

This book delves into High Performance Regenerative Receiver Design. High Performance Regenerative Receiver Design is a crucial topic that needs to be grasped by everyone, ranging from students and scholars to the general public. This book will furnish comprehensive and in-depth insights into High Performance Regenerative Receiver Design, encompassing both the fundamentals and more intricate discussions.

1. The book is structured into several chapters, namely:
    - Chapter 1: Introduction to High Performance Regenerative Receiver Design
    - Chapter 2: Essential Elements of High Performance Regenerative Receiver Design
    - Chapter 3: High Performance Regenerative Receiver Design in Everyday Life
    - Chapter 4: High Performance Regenerative Receiver Design in Specific Contexts
    - Chapter 5: Conclusion
  2. In chapter 1, this book will provide an overview of High Performance Regenerative Receiver Design. The first chapter will explore what High Performance Regenerative Receiver Design is, why High Performance Regenerative Receiver Design is vital, and how to effectively learn about High Performance Regenerative Receiver Design.
  3. In chapter 2, the author will delve into the foundational concepts of High Performance Regenerative Receiver Design. The second chapter will elucidate the essential principles that must be understood to grasp High Performance Regenerative Receiver Design in its entirety.
  4. In chapter 3, the author will examine the practical applications of High Performance Regenerative Receiver Design in daily life. This chapter will showcase real-world examples of how High Performance Regenerative Receiver Design can be effectively utilized in everyday scenarios.
  5. In chapter 4, the author will scrutinize the relevance of High Performance Regenerative Receiver Design in specific contexts. The fourth chapter will explore how High Performance Regenerative Receiver Design is applied in specialized fields, such as education, business, and technology.
  6. In chapter 5, the author will draw a conclusion about High Performance Regenerative Receiver Design. This chapter will summarize the key points that have been discussed throughout the book.
- This book is crafted in an easy-to-understand language and is complemented by engaging illustrations. This book is highly recommended for anyone seeking to gain a comprehensive understanding of High Performance Regenerative Receiver Design.

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