

The Classic Railway Signal Tower

New Haven Railroad S.S.44 / Berk

Stephen A. McEvoy

Front Cover

Westbound Train with EP-5 Locomotive Stopped at Bridgeport Station in April 1958 (top left)
Westbound Boston to Washington Train with GG-1 Locomotive #4867 in PRR Livery (top right)
Passing Bridgeport's S.S.63/Bishop Avenue Tower in April 1969
Photos by T. J. Donahue

Former New Haven Railroad FL-9 Locomotive Renumbered #5040 in Conrail Dress (bottom)
Leading a Northbound Danbury Train Past Berk Tower in 1978
Tower Operator is Standing in Shadow "Hooping Up" Clearance Card with any Train Orders
Mechanical Pipe Line is Visible between Mainline Tracks 1 and 2, and to Right of Locomotive
Photo by J. W. Swanberg

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Dedication

This book is dedicated to the many responsible men and women who have worked over the years in tower service on the New Haven, Penn Central and the many other American railroads. Elmer S. Meyerhoff was one such Tower Operator, whose distinguished New Haven Railroad career spanned the 65 years from 1888 to 1953.

This book is also dedicated to Buck Neulinger and the late Jim Rawley, two Presidents of the Western Connecticut Chapter of the National Railway Historical Society, whose vision, dedication and hard work resulted in the restoration and preservation of S.S.44/Berk as the SoNo Switch Tower Museum.



***Tower Operator Elmer Meyerhoff (wearing tie) and Leverman John Morris
Working S.S.38 at Stamford, Connecticut
Cover Photo from the July 1929 Issue of the
New Haven Railroad Company Magazine "Along the Line"***

The Tower Operator's Lament

Author unknown

I am not allowed to run the train
The whistle I can't blow
I am not the one who designates
When and where the train will go
I am not allowed to stoke the fire
Or even ring the bell
But let me route it to an unsafe track
It is me who catches hell



*Train 174 (the "Colonial") with I-5 Locomotive #1409 Passing Old Saybrook's S.S.102 in 1939
Interlocking's Mechanical Pipe Line is Visible to Right of Tracks
Photo by T. J. Donahue*

Foreword

William L. Withuhn
Curator, History of Transportation
National Museum of American History
Smithsonian Institution

Welcome to the best book, bar none, ever written about railroad signal towers and their skillful staffs. I offer that opinion with conviction – since I have spent half a century studying railway technology, in all its aspects, including the art and science of train dispatching, signaling, and signal towers.

How do trains – and fast-running ones, with many trains an hour passing the same point on intersecting paths – move safely on their way? The “sentinel of the railroad,” the “speeding train’s watchman,” and the “railroader’s guardian angel when danger lurks” – the interlocking signal tower has been called all of those things, and with justification.

Author McEvoy brings more than 41 years of direct railroad experience to this book (see Pages 163 and 164), and it shows. As important, McEvoy writes plainly and clearly – in fact, lucidly – with sufficient insight and just enough detail that the curious lay reader, as well as future generations of readers, can really appreciate the basic principles by which the signal tower and its personnel did their all-important work. That work was fundamental: guarding the safety of speeding trains on complex routings, where the danger of collisions was ever-present.

“You have done more than any man living ... to save human life.” So said King Edward VII, when he was the Prince of Wales, to one of the key inventors in the story of the railway interlocking, John Saxby. It was no exaggeration. By the 1860s and 70s, trains were running both in the United Kingdom and in the U.S. on growing networks of track, with increasing numbers of rail junctions and crossings of one rail line by another. Accidents at such places were becoming alarmingly frequent.

The secret to safety on high-speed railways was – and still is – the interlocking: a rail junction comprising several possible routes, crossings, or diversions, in which it is impossible to send a train on an incomplete or conflicting route through the junction. Impossible? Yes, because the interlocking is one of the first “logic circuits” ever invented in industry. Part of a given pathway can’t physically be set and signals given to show the way is clear unless a complete path is set. How this fail-safe arrangement works is brilliant in its conception. The interlocking is not only a landmark in the history of safe railroading, it is a landmark in the history of the computers that all of us now use everyday.

This book is not just the history of one signal tower. It is a story, really, of all such towers and of how they came to be and how they worked. The author builds the story step-by-step, in careful stages, so the lay reader can easily follow.

Foreword

And there is high drama, as you will discover. Best of all for this reader, the author includes a long overdue tribute to some of the men and women – women were tower operators on quite a few railroads – whose personal vigilance, skills, and experience kept the trains moving while ensuring a safe trip for them all.

Steve McEvoy has an important story here. As a former professional railroader myself, I deeply appreciate his major contribution, both to the history of railroading and to the appreciation of that history. Steve gives thanks, as well, to the many people and their years of effort to save S.S.44/Berk Tower as a living memorial and educational museum.

Read on; you have a Clear Board.

Bill Withuhn
Washington, DC
September 2007



***Articulated Lightweight Train the "Comet" on Public Display at Stamford Station in May 1935
Placed in Service between Boston and Providence in June 1935
Photo by F. Makowsky from the Western Connecticut Chapter-NRHS Collection***

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Preface and Acknowledgements

This book describes the operation, features and role of the New Haven Railroad Signal Station (S.S.) 44 Tower and Interlocking (renamed Berk by Penn Central) as it existed between 1965 and 1970. This five-year time period was when the author worked there as a Tower Operator, and included the Penn Central Transportation Company's 1969 takeover and assimilation of the New Haven Railroad.

Although this book focuses on one specific "Armstrong" railroad signal tower located in South Norwalk, Connecticut, which has been preserved on its original site as the SoNo Switch Tower Museum, the book is representative to a very significant degree of the many hundreds of American railroad signal towers that have served the U.S. railroads during the last century. Only a small number of these railroad interlocking towers are still in service. Most have been retired and torn down, and only a few have been preserved.

Today the vast majority of the railroad lines and interlockings in the United States are remotely controlled from large modern control centers. Even so, many principles, features and functions found in S.S.44/Berk still exist in American railroad signal and control systems.

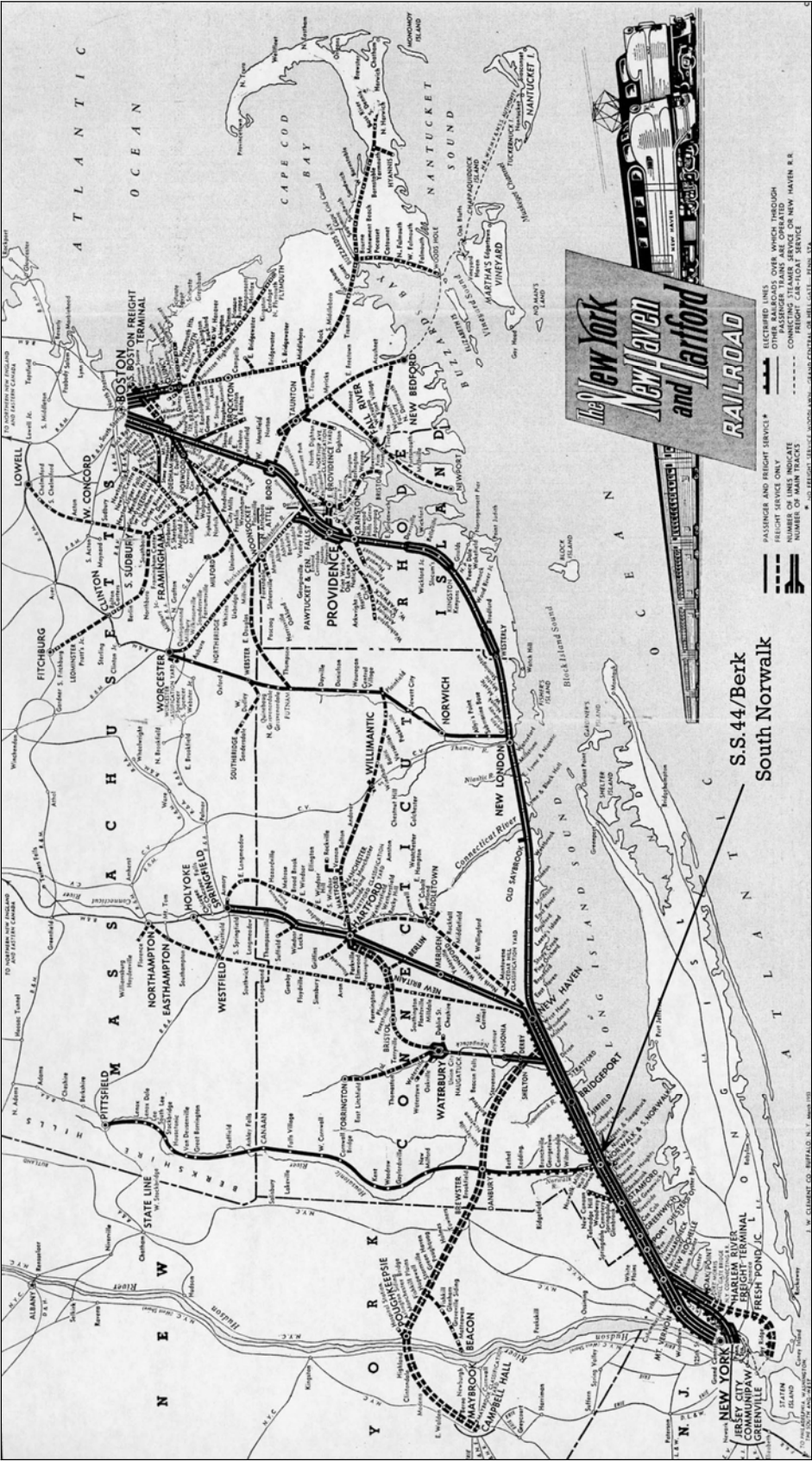
When the New Haven operating rules are mentioned in this book, the reference applies to the New Haven Railroad Book of Rules edition of October 28, 1956, which was in effect until the Penn Central takeover in 1969. When the New Haven employee timetable is mentioned, the reference applies to the New Haven Railroad Timetable No. 25 dated May 12, 1968, one of the employee timetables in effect during the author's tenure with the railroad.

When the Penn Central operating rules are mentioned, the reference applies to the Penn Central Book of Rules original edition of April 28, 1968. When the Penn Central employee timetable is mentioned, the reference applies to the Penn Central New Haven Region Timetable No. 2 dated January 18, 1970, another one of the employee timetables in effect during the author's tenure.

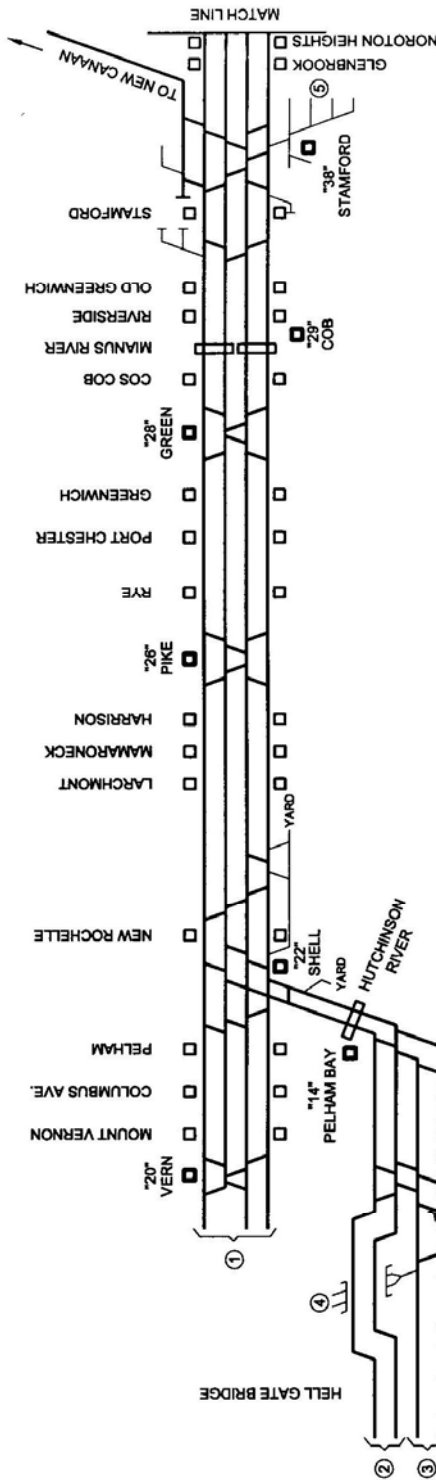
In many respects, these two different railroad rulebooks and two different employee timetables, and the underlying principles and practices, are still very representative of the many railroad rulebooks, employee timetables and operating procedures that are used in American railroading today.

Before beginning to read the book, it may be beneficial to review the maps on the next two pages and Figure 1-10. The map on Page 10 shows the New Haven Railroad as it existed in 1968. The schematic on Page 11 shows the New Haven Line track layout for the same time period. Figure 1-10 shows the entire switch, signal and track layout within and surrounding the South Norwalk area. This includes the location of the S.S.44/Berk Tower; the South Norwalk Passenger Station; the S.S.45/Walk Cabin and Swing Bridge; and the junction with the Danbury/Pittsfield Line.

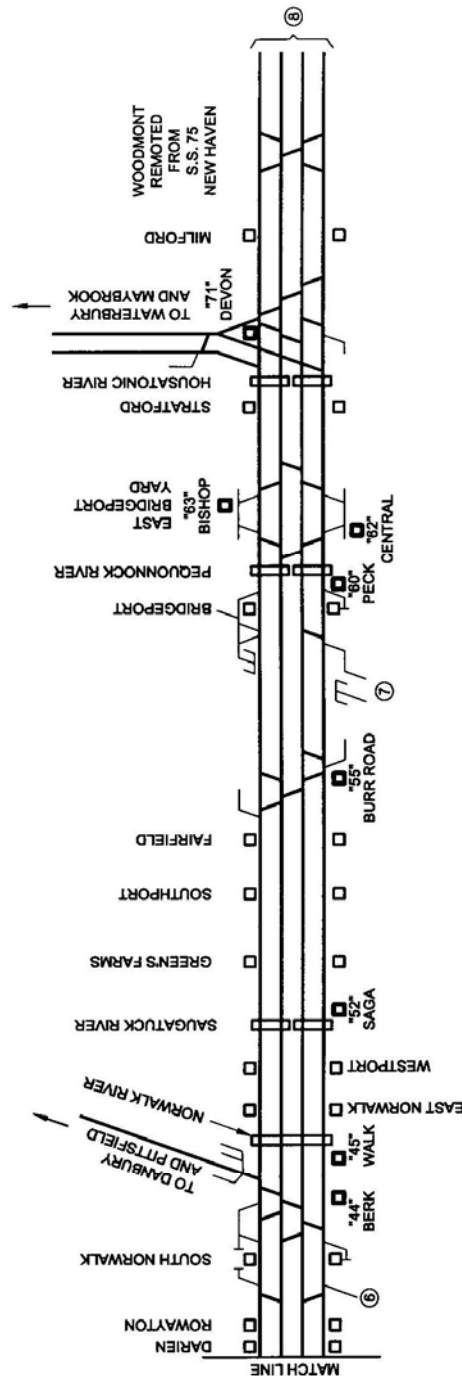
The New Haven Railroad was taken over by the Penn Central on January 1, 1969. On May 1, 1971, Amtrak took over responsibility for operating the long-distance intercity trains. The Penn Central was subsequently absorbed by Conrail on April 1, 1976. The Metro-North Commuter Railroad (a subsidiary of New York State's Metropolitan Transportation Authority) was created in 1982 and later renamed the Metro-North Railroad. On January 1, 1983, the date mandated by federal law when Conrail had to be out of the passenger-train business, Metro-North began operating the trains on the former New Haven Line, including the New Canaan, Danbury and Waterbury Branches, and on the former New York Central Hudson and Harlem Lines.



New Haven Railroad System Map from May 1968 Form 200 Public Timetable



NEW HAVEN LINE TRACK SCHEMATIC
CIRCA 1968
NOT TO SCALE



- 1 - TO NEW YORK CENTRAL RAILROAD WOODLAWN "JO" INTERLOCKING AND GRAND CENTRAL TERMINAL
- 2 - TO LONG ISLAND RAIL ROAD HAROLD INTERLOCKING AND PENNSYLVANIA STATION
- 3 - TO LONG ISLAND RAIL ROAD FREMONT INTERLOCKING AND BAY RIDGE
- 4 - HARLEM RIVER YARD
- 5 - STAMFORD YARD
- 6 - WILSON POINT TRACK
- 7 - BRIDGEPORT LOWER YARD
- 8 - TO S.S. 75 AND THE NEW HAVEN TERMINAL

INTERLOCKING TOWER SYMBOL

NEW HAVEN SIGNAL STATION NUMBER

PENN CENTRAL TOWER AND INTERLOCKING NAME

Preface and Acknowledgements

Thanks and Credits

The author is deeply grateful to many of the officers and members of the Western Connecticut Chapter of the National Railway Historical Society, who provided much encouragement for and significant assistance in the development of this book. Special thanks are due to Buck Neulinger, Roberta Ballard, Tony White, Dick Carpenter, Robert Gambling and John Garofalo. Many of the professional photographs from the Library of Congress included in this book were taken in 1980 by Thomas Brown.

The author thanks Kevin Miles for preparing several of the book's graphics, Lin Bongaardt for providing pertinent historical background material, David Thurston for reviewing and enhancing many of the photos, and Nancy Silva for finalizing and preparing the book's file for printing. The author also thanks Dr. James B. Calvert for permission to use several of his mechanical-locking graphics. Special thanks are due to Lin Bongaardt, Alan B. Buchan, Dr. James B. Calvert, Peter Lynch, Erna Peterson, Robert Reinstrom, Al Santini and David Thurston for reviewing the draft manuscript and for providing valuable input, comments and recommendations.

Lastly, my wife Marge deserves honorable mention for the great encouragement and patience that she showed during the past year, without which this book would not have been possible.

Stephen A. McEvoy



***Former New Haven Railroad FL-9 Locomotive Renumbered #5040 in Conrail Dress
Leading a Northbound Danbury Train Past Berk Tower in 1978
Tower Operator is Standing in Shadow "Hooping Up" Clearance Card with any Train Orders
Mechanical Pipe Line is Visible between Mainline Tracks 1 and 2, and to Right of Locomotive
Photo by J. W. Swanberg***

Chapter 1

Introduction and General Information

The New York, New Haven and Hartford Railroad's South Norwalk Signal Station (S.S.) 44 Tower Building and Interlocking were constructed and placed into service in 1896. These improvements were part of a broad capital-improvement program undertaken by the railroad to provide a four-track grade-separated mainline between New York City and New Haven, Connecticut. The tower is located 0.3 mile east of the South Norwalk Passenger Station on the south side of the tracks.

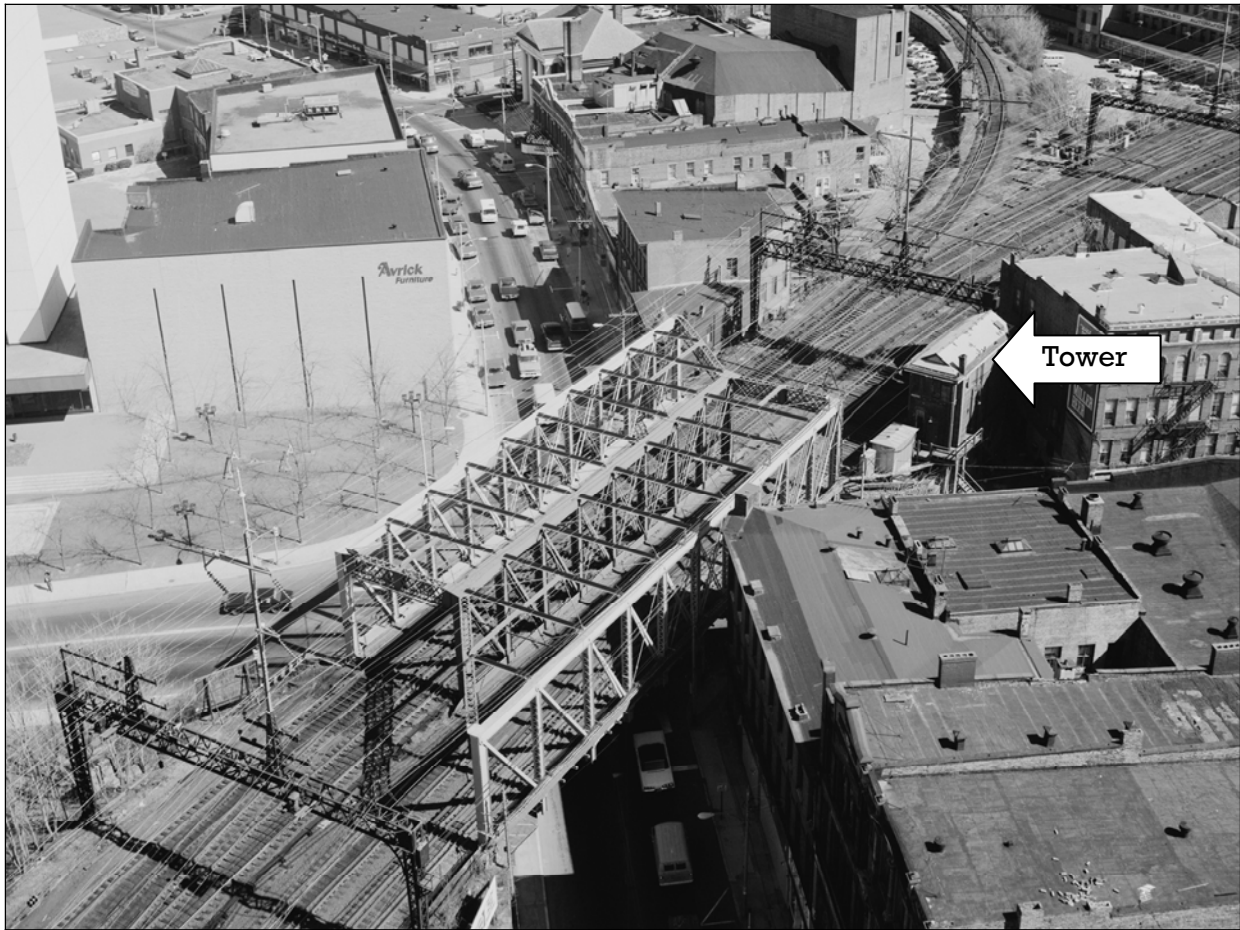


Figure 1-1

Aerial View of S.S.44/Berk Tower in 1980

From the Library of Congress - Prints & Photographs Division, HAER CONN,5-NEWHA,37-21

In Figure 1-1, “railroad east” is to the top right and “railroad west” is to the bottom left. The S.S.44/Berk Tower is located on the south side of the tracks immediately east of the bridge over Washington and Main Streets. The tower is directly across the tracks from the switch to the Danbury Branch, the single-track line that diverges toward the top of the photo. The building is 37 feet long by 12 feet wide, three stories tall, and is of wood and masonry construction.



Figures 1-2 and 1-3
View of S.S.44/Berk from Street in September 1969 (top)
View of S.S.44/Berk from the North Side of the Tracks Looking West in August 1969 (bottom)
Photos by George E. Ford

The Figure 1-2 and 1-3 photos were taken shortly after the 1969 Penn Central takeover, at which time the tower and interlocking were renamed Berk.

The original 1896 Armstrong interlocking machine and equipment were retired in 1919 and replaced by a “new” 68-lever Johnson Mechanical (Armstrong) Interlocking Frame. “Armstrong” is a slang term that was applied to a wide variety of railroad mechanical interlocking machines made by multiple signal-system manufacturers because they all had one thing in common. They required “strong arms” to operate the mechanical levers, especially the switches. The lever portion of the interlocking machine remains on the top floor of the tower.

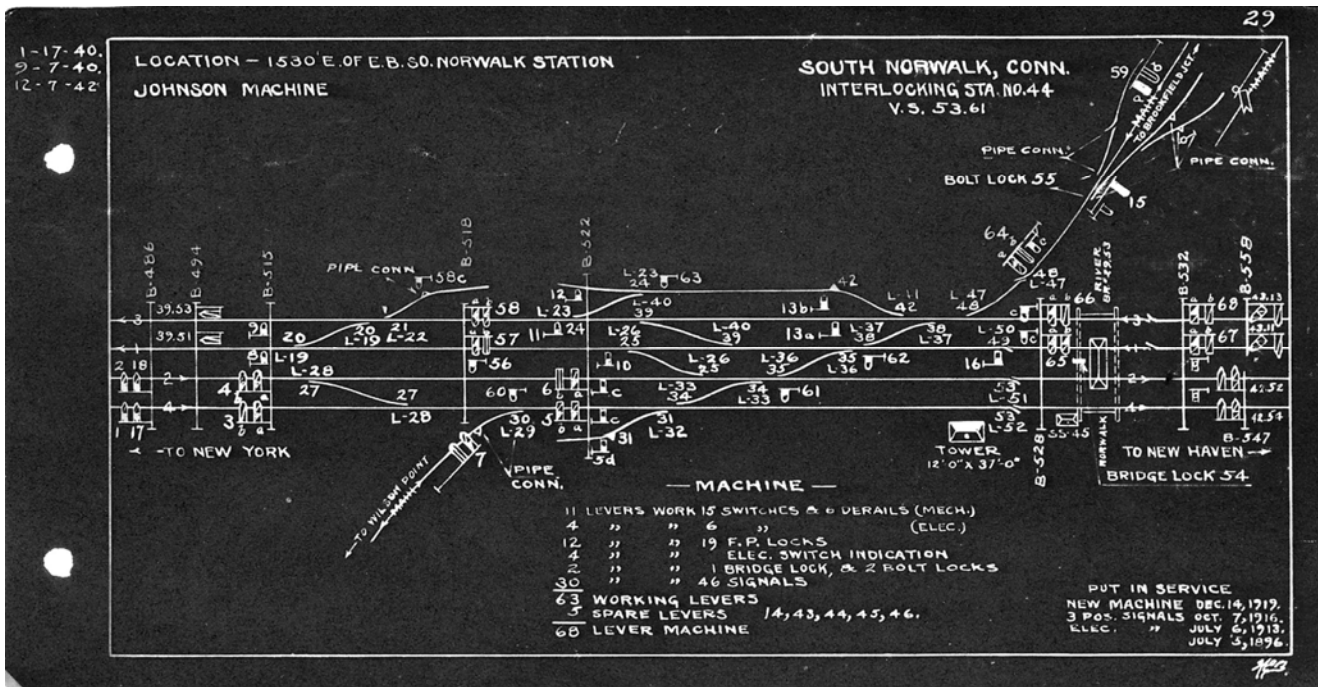


Figure 1-4
New Haven Railroad S.S.44 Interlocking Schematic Last Updated on December 7, 1942
Provided by John Garofalo

Most people, including Tower Operators, consider the interlocking machine to primarily be the levers that are above the operating floor. However, most of the S.S.44/Berk interlocking machine and its components, including the mechanical locking and electrical contacts, are located below the floor. This equipment is accessed from the Signal-Department’s/Signal-Maintainer’s room that is downstairs, immediately below the levers.