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COMPOSITE CATEGORIES CLASSIFICATION & INDEX

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Brian Clearman

Mount Angel Abbey

2006

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PREFACE

The Transportation-Markings Database project (within the T-M Monograph Series) began in 1997 with the publishing of the initial component, *Transpor-tation-Markings Database: Marine.* That study was joined by *T-M Database: Traffic Control Devices* (1998), *Railroad Signals* (2000), *Aero Nav Aids* (2001) components. Each component included a double index (T-M forms arranged in categories, and an alphabetical index), and descriptive entries for individual T-M forms. Each component, in turn, was divided into major sub-components (e.g. Fixed Lights, Buoys, Radio Aids).

The several category indexes did not ignore the classifications from the earlier modal studies (Parts C/D, E, F, G; the intermodal study of U.S. aids, Part B). But neither did they fully incorporate those classifications. In some instances database category indexes and modal classifications were marked by a substantial correlation, but in other cases indexes and classifications displayed only limited correlation.

This study, Part Iv, is a review and revision of the category indexes (which can also be viewed as a form of classification). It examines and more substational-ly incorporates modal classifications into the Database indexes. The study theeby creates an integrated core for the entire T-M project -- and not only the Database -- by listing all T-M forms. The end result is a consolidated categories classification,

All T-M forms for each transportation mode are grouped together in a single chapter. This contrasts with the current multi-chapter format. Each chapter is then divided into the major forms of that mode. The Index/classifications are accompanied by notes delineating differences between index and text of the Database; differences between database entries and modal classifications; and a listing of new terms. There are no bibliographies or traditional back-of-the-book indexes.

CHAPTER ONE

MARINE AIDS TO NAVIGATION

1A Buoys & Other Floating Aids
1A1 Physical Buoys
a) Overarching Terms
1) Basic Overarching Terms
Aids to Navigation Buoy*
Buoy
Boye/Bwoy
Buoyage
Buoyant Beacon
Floating Aid
Floating Beacon
Floating Mark
Marker
Marker Buoy (Multiple meanings)
Navigation Buoy*
Navigational Buoy
2) Other Overarching Terms (Often partial; frequently informal)
Approach Buoy
Automatic Buoy
Deep Sea Buoy
Harbor Buoy
Metal Float
Ocean-Buoy/Ocean Buoy
Oceanic Buoy
Sea Buoy/Sea-Buoy
Seacoast Buoy
Short Range Aids to Navigation*
Signal
Unlighted Buoy
Visual & Audible Aids to Navigation*
3) General Overarching Terms for Marine Aids to Navigation

General Comments
Aids*
Aids to Navigation
Beaconing
Coastal Aids/Coastal Marks
Fixed Marks & Floating Marks
Guiding Marks
Landmarks
Landfall Marks
Lighted Sea Aids*
Major Aids*
Marks
Marks & Signs for the Sea
Markers
Navigation Marks
Navigation Signs*
Navigational Aids
Sea Marks/Sea-Marks/Seamarks
Shore-Based Lights*
Curious Terms:
Marine Signposts
Ocean Lamp-Posts
b) Lighted Buoys
Acetylene Buoy*/Acetyline Gas Buoy*
Automatic Electric Buoys
Electric Buoy/Electric-Buoy
Electric Light Buoy/Electrical Light-Buoy/Electrically Lighted Buoy*
Float (with Light)
Floating Light Beacon
Foster's Gas-Lighted Buoy*
Gas Buoy/Gas-Buoys
Gas Lighted Buoy
Gas-Lit Buoy
High Focal Plane Buoy/Lighted Buoy of High Focal Plane

Lantern-Buoy
Light Buoys/Light-Buoys/Lightbuoys
Lighted Buoys
Lighted Marks
Luminous Buoy
Mast Buoy*
Oil Gas Buoy*/Oil Gas Lighted Buoy
Platform Buoy (Light)
Spar Buoy Fitted with Electric Light*

c) Can & Conical Buoys
Can/Can Buoy/Can-Buoy
Cann Buoy
Cylinder Buoy/Cylindrical/Cylindrical Buoy
Cone Buoy
Conical/Conical Buoy
Convex Buoy*
Nun/Nun Buoy
Can & Cone Buoy
Fast Water Buoy*
Fast Water Can Buoy
Fast Water Nun Buoy
Special Can Buoy
Tall Can Buoy
Iron Can Buoy
Iron Nun Buoy
Special Nun Buoy
Spindle-Shaped Nun Buoy
Spiral Buoy*
Tall Nun Buoy

d) Spar Buoys
1) Basic Spar Buoys
Spar/Spar Buoy/Spar Buoy
Iron Spar/Iron Spar Buoy
Spindle Type-Tapered Spar
Tubular Spar Buoy

Wooden Spar/Wooden Spar Buoy
2) Specialized Spar Buoys
Floating Beacons (Netherlands includes Spar on Can, Spar on Conical/Can)
Mast Buoy*
Special Forms (These are visually at variance with true Spars and lack separate name; names employed here are descriptive labels)
Spar on Can
Spar on Can/Conical (Norway: this is termed a Spar Buoy; Spar is Standard)
Spar on Cone
Spar on Curved Can (Spar on Can with Curvature)

e) Barrel & Cask Buoys
Barrel/Barrel Buoy*
Cask
Drum Buoy*
Keg Buoy
Oil Drum/Oil-Drum Buoy
Seatonne
Ton Buoy
Tonne
Tun

f) Standard & Former Standard Buoys
Pillar Buoy
Cagework Buoy
Ogival Buoy
Sphere Buoy
Spherical Buoy
Spindle

g) Sound Buoys
1) Overarching Terms
Sound Buoy
Automatic Sounding Buoy/Sounding Buoy*
Sound Signal Buoy

2) Bell Buoys
Bell Buoy/Bell-Buoy/Bellbuoy*
Iron Bell Beacon Vessel
Unlighted Bell Buoy
Bell Boat/Bell-Boat/Bell Ship
Boat-Shape Buoy
Brown Bell Buoy*/Brown's Bell Buoy
3) Whistle Buoys
Automatic Buoy/Automatic Signal Buoy
Automatic Signal Buoy (Whistle)*
Automatic Whistling Buoy*
Courtenay Buoy*/Courtenay's Whistling Buoy
Large Whistle Buoy
Unlighted Whistle Buoy
Whistle Buoy
Whistling Buoy/Whistling-Buoy
4) Siren Buoys
Alarm Buoy
Horn Buoy
Siren Buoy
5) Other Sound Buoys
Carillon Buoy
Gong Buoy

h) Combination Buoys
Combination Buoy
Lighted Sound Buoy/Lighted-Sound Buoy
Boat-Shaped Buoy (With Bell)
Lighted Bell Buoy
Lighted Bell Buoy (Can/Conical/Spherical)
Lighted & Bell Buoy
Gas & Bell Buoy/Combination Gas & Bell Buoy
Lighted Whistle Buoy
Gas-Whistle Buoy/Gas & Whistling Buoy/Gas & Whistle Buoy
Lighted Gong Buoy
Lighted Horn Buoy

Submarine Bell Buoy/Buoy Fitted with a Submarine Bell
Gas, Whistling & Submarine Bell Buoy

i) Other Physical Buoys
1) Materials of Construction
Foam-Filled Buoy
Glass-Fibre Buoy
GRP Buoy
Iron Buoy
Metal Buoy
Oaken Buoy
Plastic Buoy
Reinforced Plastic Buoy
Steel Buoy
Wood (-en) Buoy
2) Special Names Referring to Physical Structure
Blind Buoy
Dan Buoy
Double Buoy/Relieving Buoy
Estuary Buoy
Ice Buoy/Ice-Buoy
Marker/Marker Buoy (Has Several Meanings Including
Overarching And Possibly Morphological Meanings)
Winter Buoy
3) Other Specialized Buoys
Beacon Buoy (Bake-Germany; Lighted & Unlighted Forms)
Beacon-Buoy/Beacon-Buoy II
Perch Buoy Forms
Perch Buoy
Log Perch Buoy
Summer Perch Buoy
Winter Perch Buoy
Radio Aids Forms
Radar Beacon Buoy
Radar Reflector Buoy*
Radio Beacon Buoy/Radiobeacon Buoy

Sonobuoy
Sono-Radio Buoy
Historic Buoy Forms
Buoy Shapes Subforms
Egg-Bottomed Buoy
Flat-Bottomed Buoy
Flat-Bottomed & Wrought Iron Buoy
Bottom-Shaped Buoy
Personal Names:
Captain Harris's Floating Lighthouse*
Captain Moody's Floating Lighthouse*
Herbert's Buoy
Lenox's Buoy
Poulter's Buoy
Iron (Herbert's) Buoy
Peacock Life Buoy
Herbert's or Inverted Cone Buoy
Refuge Buoy-Beacon
Other Forms:
Discrepancy (Temporary) Buoy*
Hollow-Bottom Buoy
Refuge Buoy-Beacon
Wandering Buoys*

1A2 Buoy Morphology Terms

a) Location

1) Approach Buoys

Approach Buoy
Bar Buoy
Farewell Buoy
Landfall Approach Buoy
Landfall Buoy/Land Fall Buoy
Landfall Approach Buoy
Recognition Buoy
Sea Buoy/Sea-Buoy

2) Channel Edge Buoys (or Channel Limit Buoys)

Starboard Buoy
Starboard Hand Buoy/Starboard-Hand Buoy/Starboard-Side Buoy/Righthand Buoy
Port Buoy/Porthand Buoy/Port Hand Buoy/Port-Hand Buoy/Port-Side Buoy

3) In-Channel Buoys

Bifurcation Buoy
Centerline Buoy
Channel Buoy/Channel-Buoy
Fairway Buoy
Junction Buoy/Lighted Junction Buoy
Lateral Buoy
Mid Channel Buoy/Mid-Channel Buoy
Middle-Ground Buoy/Middle Ground Buoy/Middleground Buoy
Preferred Channel Buoy
Transition Buoy
Turning Buoy

b) Hazard Buoys

Cable Buoy/Cable-Buoy
Dan Buoy
Danger Buoy/Isolated Danger Buoy
Dredging Buoy
Fish Net Buoy/Fishnet Buoy/Fish-Net Buoy/Fish Trap Buoy
Obstruction Buoy
Outfall Buoy
Practice Area Buoy/Marking of Areas-Military/Military Practice Area Buoy
Spoil-Ground Buoy
Telegraph Buoy/Telegraph Cable Buoy/Submarine Telegraph Buoy
Wreck Buoy/Wreck-Marking Buoy

c) Buoy Names From Messages

Color Forms:
Black Buoy
Green Buoy

Red Buoy
White Buoy
Yellow Buoy
Color Combination Forms:
Black/White Vertical Striped Buoys
Checkered Buoy
Parti-Colored Buoy
Red/Black Horizontal Banded Buoys
Vari-Colored Buoys
White/Black Horizontal Banded Buoys
White/International Orange Buoys
White Buoy with Green Top
Yellow/Black Vertically Striped Buoys
Yellow (Green Top) Buoy/White Buoy with Green Top
Other Message-Based Names Forms:
Intracoastal Waterway Buoy
Topmark Buoy

d) Names From Indirect Navigation Uses

1) Station Buoys
Station Buoys
Lightship Station Buoy/Light-Vessel Station Buoy
Position Buoy/Position Spar
Watch Buoy/Watch-Buoy
Marker Buoy (This term has several meanings)

2) Towing Buoys
Towing Buoy/Towing-Buoy/Towing Spar/Towing-Spar
Fog Buoy/Fog-Buoy/Fog Spar

3) Anchor, Anchorage & Mooring Buoys
Anchor Buoy/Anchor-Buoy
Anchorage Buoy/Aero Anchorage Buoy/Explosive Anchorage Buoy
Light-Vessel Mooring Buoy
Mooring Buoy
Hong Kong Mooring Buoy
Trunk/Trunk Mooring Buoy

Quarantine Buoy
Quarantine-Ground Buoy
Quarantine (Ground) Buoy
Kedge-Buoy
Warping Buoy

e) Special Purpose Buoys
Special Buoy/Special Purpose Buoy/Special-Purpose Buoy/Special-Duty Buoy

f) Miscellaneous Buoys
Compass Adjustment Buoy
Hauling-Off Buoy
Measured Mile Buoy
Seadrome Buoy
Survey Operations Buoy
Swing Buoy

1A3 Excerpts from Buoy Adjunct Terms
Marks*
Bifurcation Marks
Buoyage-Marks*
Can Marks*
Channel Marks*
Conical Marks*
Floating Marks
Junction Marks*
Landfall Marks*
Lateral Marks
Lighted Marks*
Outfall & Spoil-Ground Marks*
Porthand Marks/Port Hand Marks*/Port-hand Marks*/Port-Hand Aids*
Spar Marks*
Spherical Marks*
Starboard Hand Marks/Starboard-Hand Marks*/Starboard Hand-Markers/Starboard-Hand Aids*
Cardinal Buoys*
Cardinal Marks/Cardinal Markers

North, South, West, East Cardinal Marks
Isolated Danger Marks
Mid-Channel Marks*
Middle Ground Marks/Middle-Ground Marks*
Quarantine-Ground Marks*
Safe Water Marks
Spare Marks
Special Marks
Transition Marks*
Undefined Marks*
Wreck Marks*
Ocean Data Acquistion Marks
Traffic Separation Marks
Spoil Ground Marks
Military Exercise Zone Marks
Cable/Pipeline Marks
Recreation Zone Marks

1A4 Major Floating Aids

a) Overarching Terms
Large Automatic Navigation Buoy*
Large Floating Aids
Floating Light*
Large Floating Navigational Aids
Major Floating Station

b) Lightships & Light Vessels
General Comments I, II
Lightship/Light Vessel (Core Term)
Lightship/Light-Ship
Light Vessel
Human-Related Terms
Relief Ship
Lightvessel/Light Vessel/Light-Vessel/Light-Vessel Station
Relief Vessel/Relief Light Vessel/Relief Ship/Relief Lightship/ Relief Light-Ship/Spare Light-Vessel
Attended Lightvessel/"Manned" Lightvessel/Un"manned" Light

Vessel/Unattended Light-Vessel/"Manned" Light Vessel/Automatic Lightship/Automatic Lightship/ "Manned" Lightship/Un "manned" Lightship/Unattended Light Vessel/Un "manned" Light-Vessel/Unattended Lightship/Automatic Un"manned" Lightship/ Light-Vessel Unwatched
Floating Lighthouse
Floating Light/Floating-Light

c) Light Floats
Lightfloat/Light Float/Light-Float/Gas-Light Float
Automatic Lightfloat/Automatic Light-Float/Automatic Light Floats*/ Un"manned" Light Float/Un"manned" Light Float
Light-Boat/Lightboat/Boat Float/Unattended Lightboat/Boat Beacon/ Gas Boat
GRP Catamarans & Catamarans

d) Large Navigational Buoys (LNB)
LNB/Large Navigational Buoy/LAN BY/Large Automatic Navigation Buoy
Superbuoy
Large Buoy
Lighthouse Buoy

Notes

New Terms:

Aids to Navigation Buoy, Wesler 1966
Navigation Buoy, Wesler 1966
Acetylene Buoy, Wesler 1966
Acetylene Gas Buoy, Wesler 1966
Cardinal Buoys, IHB 1925
Convex Buoy, Edwards 1884
Courtney Buoy, Edwards 1884
Discrepancy Buoy USCG LL 1991
Electrically Lighted Buoy, Part J

Fast Water Buoy, USCG A/N 1990
Floating Lights, Edwards 1884
Foster's Gas-Lighted Buoy, Heap 1889
Large Automatic Navigation Buoy, Renton 2001
Lighted Sea Aids, Part J
Major Aids, Part J
Mast Buoy, Edwards 1884
Navigation Sign, Hague & Christie 1975
Oil Gas Buoy, Wesler 1966
Port-Hand Aid, Naish 1985
Spar Fitted with Electric Light, Heap 1889
Spiral Buoy, Edwards 1884
Starboard-Hand Aid, Naish 1985
Barrel Buoy, Wesler 1966
Drum Buoy, Edwards 1884
Sounding Buoy, Edwards 1884
Bellbuoy, Renton 2001
Brown Bell Buoy, Wesler 1966
Automatic Signal Buoy (Whistle), Edwards 1884
Automatic Whistling Buoy, Edwards 1884
Radar Reflector Buoy, Wesler 1966
Captain Harris's Floating Lighthouse, Heap 1889
Captain Moody's Floating Lighthouse, Heap 1889
Discrepancy (Temporary) Buoy
Wandering Buoy, Wesler 1966
Relief Light-Ship, Heap 1889
Automatic Light Floats, Renton 2001
New Terms: Additions to Marks:
Either UN 1957 or LN 1936 (Burton 1980 addition for Port Hand Marks)

Terms from Part J: A variety of terms were added in this study. Some may have been coined because of the nature of the study (all forms of Transportation-Markings in close proximity). Others may have been misnomers or may have become separated from source materials. The terms included All-Metal Buoys, Bell Floats, Electric Lighted Buoy, Pointed Buoy, Sound (Bell) Buoy, Visual

Buoys. They are not included in this study. Two terms are included:
Aids (and other sources)
Short-Based Lights

Differences between index and text of DB include:

There is less batching of terms in index. For example, all materials of construction were a single entity in the Database while different materials are listed separately in this study.

Oceanic Buoy in text appears as Ocean in index. The error has been corrected.
Sea-buoy form omitted in text but now added.
Beaconing: omitted in text but now added.
Landmarks omitted in index but Landfall Marks included twice; now included.
Two forms categories listed by shape and non-shape differentiation in index but no entries given. These categories were omitted in text.
Float (with Light) given in index though text included Float (Light) instead. Index form correct since term intended to note Float was of a lighted form though not so stated in title.
Lighted Marks present in index though not in text. Now included in both
Platform Buoy (Light) in text but not in index; now added.
Submarine Bell Buoy in text but not index. Questionable since this aid was fully termed Gas, Whistle & Submarine Bell Buoy
Spar: Spindle-Tapered Spar in text altered to more accurate: Spindle Type-Tapered Spar.
Brown's Bell Buoy in text but not in index. This term ineeds to be added to Index. Brown Bell Buoy, a new term, adjoins this term.
Boat-Shape Buoy in text under Sound Buoys in Combination Buoys in index.
Lighted & Bell Buoy missing from index but now added.
Double Buoy/Relieving Buoy in text but omitted from index; now added.
Hollow-Bottom Buoy in two places in Index but one in text. It is now located in one place: Historic Forms: Other Forms.
Beacon-Buoy and Beacon Buoy II are additional forms found in text.
Radiobeacon Buoy is found in one and two word forms in text. Index altered to reflect that pattern.

Buoy Shapes subforms appears in text rather than Shapes-described forms in index; former practice now adopted for both index and text.
Lenox's Buoy not in text but in index; it is now added.
Land Approach Buoy not in text. This may be a red herring. See correct terms of Landfall Buoy and Landfall Approach Buoy.
Channel Limit forms rather than In-channel forms employed in text; channel limits can be employed for channel edge but not in-channel.
Preferred Channel Buoy in text but not index; now added.
Practice Area Buoy, etc in different locations for index and text. Both are now in Hazard Buoys.
White buoy with green top attached to another entry in text and basic entry not complete. Entry reconfigured and corrected.
Position Buoy and Position Spar in text under Station Buoys. Index placed them under Towing. Both buoys now in Towing for both index and text.
Towing Spar in text with and without hyphen. Index had only later form but now corrected.
Light-Vessel Mooring Buoy in text but now added to index.
Marks and Spare Marks not in text. Spare Marks apparently a red herring. The general term of Marks placed with specific forms in index.
Porthand Marks and Starboard Hand-Markers are questionable since source has not been located.
Superbuoy omitted from Index; added to this study. Large Buoy and Lighthouse Buoy separate entries in Text but not in Index; now separate in this study.

Differences between B, C/D, H, and Database index, text:

C/D differentiates Lighted Buoys by shape and by nation. This is not done in Database.
Can and Conical Buoys given by nation in C/D.
Spar Buoys complex order in C/D: arranged by standard, modified, special and nation.
Miscellaneous Buoys = Barrel and Cask in Index in C/D.
Sound Buoys lists basic forms and by nation in C/D.
Combination Buoys: basic forms and by nation in C/D.

Part H reflects many of the practices of Part C/D. It includes Electronic Aids not found in C/D. It also includes Major Lighted Aids not found in C/D including the Lighted Catamaran which is also not in the Database.
Part B incorporates the location classes in the classification as well as materials of construction.

1B Fixed Visual Aids

1B1 Fixed Lights

a) Overarching Terms

1) General Overarching Terms

Fixed Aids to Navigation
Fixed Lights
Lights
Lights on Fixed Structures
Light Aids
(Light) Beacon/Lighted Beacon/Light Beacon/Light-Beacon
Lighted Marks
Marine Light
Maritime Lighting

2) Overarching Terms for Major Lights

Beacon-Fires*
Beacon-Light*
Beacon Tower
Blazing Beacons*
Coast Light/Coastal Lights/Coastwise Lights [See also: Morphological Terms]
Electric Light Station*
Enclosed Towers*
Fire-Towers*
Freestanding Light*
Lake Light-House
Land Structures/Land Towers/Land Lighthouse/Land Lights
Lighthouse/Light-House/Light House
Lighthouse Beacon
Lighthouse System
Light Attached to Keeper's Dwelling*
Light Station/Light-Station
Light-Tower/Light Tower/Lighted Tower*
Lighted Coastal Beacon

Major Beacon
Major Light
Major Light Structures
Navigation Light/Navigational Light
Non-Towers*
Offshore Light/Offshore Lighthouse
Open Tower*
Openwork Structures
Phare/Faros/Pharus/Pharos
Primary Seacost Light [Term is also morphological]
Rock Station
Rock Lighthouse*/Rock Lighthouse Tower*/Rock Tower
Roof-Mounted Light*
Sea-Light/Sea Lights
Sea Lighthouse*
Sea-Girt Towers
Sea-Navigational Light
Sea-Swept Lighthouses
Sea Tower*
Secondary Light/Secondary Coastal Light [Term is also morphological]
Shore-Based Lights*
Shore Structures/Shore Lights
Structures on Islands & Promontories
Tall Coastal Towers
Tower
Wave-Exposed Towers*
Wave-Swept Structures/Wave Swept Lighthouses/Wave-Swept Tower

3) Overarching Terms for Minor Lights

Beacon/Beacon Light/Beacon-Light/Iron Beacon/Stone Beacon/Wooden Beacon
Harbor Light/Harbor-Light/Local Harbor Light
Light Beacon/(Light) Beacon/Lighted Beacon
Local Light

Minor Light
Other Light
River Light/Riverine Light/River Beacon
Short-Range Aids*
Shore & Harbor Lights*
Support/Iron Support/Wooden Support

b) Major Lights

1) Subdivisions

Note to Major Categories
Wave-exposed Lights*
Wave-Swept Towers/Wave-Swept Structures/Wave-Swept Lighthouses/
Sea Girt Lighthouses/Sea-Swept Lighthouses
General Comments
Land Towers/Land Structures
General Comments I, II

2) Major Lights-Individual Entries (Classified according to this schema: L=Probably Land-Based; LT=Possibly either but Tending toward Land location; LM=Land-Base More likely; More=Marine; A number of L Categories entries could be Marine when combined with a Special Marine Foundation).

Note: This first entry in DB is very long, complex. The following entry is an alternate formulation for this study.

Cast Iron Lighthouse/Cast-Iron Lighthouse/Cast Iron Tower/Cast Iron Plate Tower
Iron Frame/Iron-Frame/Iron Framework Light-house/Iron Frame-work Lighthouse/Iron Framework Tower
Iron Lighthouse/Iron Light-House
Iron Pile Lighthouse/Iron Pile Light-house
Iron Pyramidal Framework Light-House
Iron-Skeleton Light-House*/Skeleton Iron Light-House*
Iron Tower
Open Iron Structure/Open Iron Tower

Pyramidal Iron Skeleton Tower
Skeleton Wrought-Iron Tower/Skeleton Wrought Iron Tower*
Wrought-Iron Open Framework Structure

Brick Tower
Building/Wooden Building
Concrete Caisson Tower
Concrete Tower/Monolithic Concrete Tower
Cylinder
Dwelling
Enameled Panels on Steel Towers
Frame Tower/Framework/Framework Tower
Granite Tower
House/Wooden House
Masonry Tower
Offshore Light/Offshore Lighthouse
Pile Lighthouse/Pile Light-House
Rock Tower/Rock Lighthouse/Rock Station
Screw-Pile Tower/Screw-Pile Lighthouse/Screw-Pile Foundation/Screw-
Pile Structure/Screw-Pile System
Skeleton Steel Structure*
Skeleton Steel Tower/Skeleton Tower/Skeleton Structural Tower/ Lattice Steel Tower/Steel Tower
Skeleton Structure
Skeleton Wood Tower
Stone Tower/Monolithic Stone Tower
Structure
Submergible Lighthouse
Telescopic Lighthouse
Tower on Marine Foundation/Lattice Steel Tower/Steel Tower
Wooden Structure
Wooden Tower
Foundations
Caisson Foundations

Crib Foundation
Stone Foundation

c) Minor Lights
1) Single-Member Structures
(a) Narrower Types
Articulated Light/Buoyant Light Beacon/Resilient Beacon/Resinex Beacon/Resinex Tension Beacon
Mast/Beacon Mast/Mast Beacon
Pedestal
Pillar/Metal Pillar
Pipe/Pipe Light
Pole/Single Pole/Pole Beacon
Post Light/River-Post Light/Steel Post Light/Post Light/Post-Light/Iron Post
Pylon
Single Pile/Single-Pile Light/Single-Pile Beacon
Spar/Spar Light
Spindle/Spindle Light
Staff/Iron Staff
Stake Light/Rive Stake Light
Spindle/Spindle Light
Standard Structure on Special Foundation
(b) Wider Types
General Comments
Column
Concrete Beacon (Column)
Cylinder/Cylindrical/Cylindrical on Marine Foundation
GRP Beacon/GRP Beacon Tower
Obelisks
Pillar
Pylon
2) Multiple-Member Structures
Braced Pole Light
Cylindrical/Cylindrical on Marine Foundation
Dolphin/Dolphin Light/Dolphin Beacon

Framework
Guyed Tower/Semi-guyed Tower
Multiple Pile/Multiple Pile Light
Pile Structure/Pile Structure Light/Pile Structure on Marine Foundation
Skeleton Steel Tower/Skeleton Tower/Lattice Steel Tower/Structural Tower/Structural Tower on Marine Foundation
Skeleton Structures
Tripod/Tripod Light/Tripodal Tower/Tripodal Tower Light/Tripod Beacon
Tubular Structures
3) Enclosed/Composite/Single Structures
Apparent Light
Arms
Cairns
Fanal
House
House/Hut on Structure/House/Hut on Pile Structure/House/Hut on Tripod
Hut
Iron Frame/Triangular Frame/Wooden Frame
Iron Turret
Lever Light/Swape Light/Popinjay
Lighted Bank
Pyramid/Pyramid Beacon/Stone Pyramid/Pyramidal
Small House/Small House on Marine Foundation
Stand/Iron Stand
Triangle Beacon

d) Morphological Terms
1) Major Lights
Coast Light/Coast Station
Coastal Beacon/Coastal Beacon Light/Coastal Light/Coastal Lighthouse/Coastal Navigation Aids/(Lighted) Coastal Beacon
Coastal Tower*

Coastwise Beacon/Coastwise Beacon Light/Coastwise Light/ Coastwise
Coasting Light
Feu de Jalonnement
First Class Light/First Class Dioptric Light/First-Order Dioptric Light-House/First-Class Fixed Light
Guidance Light/Guiding Light/Guide Light
Hazard Light
Headland Light/Head Light
Landfall Light
Lights of the First Order/-Second/-Third/-Fourth/-Fith/-Sixth
Main Light
Major Coastwise Light
Making Light
Obstruction
Warning Light/Warning Beacon Light

2) Minor Lights
Bar Beacon
Bridge Light/Bridge Navigation Light
Channel Light/Channel Markers/Channel Navigation Light
Direction Light/Directional Light/Direction Beacon
Dock Light
Fishing Light/Fishing-Light
Feu De Rive
Fog Detector Light
Isolated Danger Light
Jetty End Light
Leading Light
Marine Traffic Light
Pier Light/Pierhead Light/Pier-Beacon
Port Light
Range Light/Range Beacon/Electric Range Light
Sector Light/Light Sector/Sectored Light/Sector Navigation Light/Port Entry Light Sector Light (Partially Major Morphological)

Single Station Leading Light/Single Station Direction Light/Single Station Range Light
Tide Light/Tide-Light/Tide Signal/Tidal Light
Traffic Signal/Port Traffic Signal

e) Character of Operation Terms
1) Nature of Operations
Attended Light/Nonattended Light/Unattended Light
Automatic Light/Automated Light*
"Manned" Light/"Unmanned" Light/"Manned" Lighthouse
Robot Light*
Semi-Watched Light
Watched Light/Unwatched Light/Unwatched Navigation Light

2) Specific Character of Light Operations
Auxiliary Light
Emergency Light
Main Light
Occasional Light
Permanent Light
Seasonal Light
Standby Light
Subsidiary Light
Temporary Light
Vertical Light
Weak Light
Winter Light

f) Miscellaney
Aeromarine Light
Aeronautical Light
Chapel Lighthouse
Cottage Lighthouse
Fire Beacon/Fire Tower
First Class Light
High & Low Lights
Lamp-Post
Lantern Light

Lighthouse-Ornee
Major Harbor Light/Minor Coastal Light
Private Light
Standing Beacon
Turret

Notes: Major Lights

New Terms:

Beacon-Fires, Adams 1870, Edwards 1884
Beacon-Light, Adams 1870
Blazing Beacon, Edwards 1884
Coastal Lighthouse, Part J
Coastal Tower, Bathurst 1999
Electric Light Station, Edwards 1884
Fire-Tower, Adams 1870, Edwards 1884
Freestanding Light, Stephens 1973
Iron-Skeleton Light-House, Heap 1889
Lights Attached to Keeper's Dwelling, Stephens 1973
Robot Light, Le & We 2000
Rock Lighthouse, Edwards 1884, Bathurst 1999
Roof-Mounted Light, Stephens 1973
Sea Lighthouse, Adams 1870
Sea-Tower, Adams 1870
Shore & Harbor Lights, Part J
Shore-Based Lights, Englesou 1998
Short-Range Light, Keeler 1987
Skeleton-Iron Light-House, Heap 1889
Skeleton Steel Structure, USCG 1964
Skeleton Wrought Iron Tower, USCG 1964
Wave-Exposed Towers, Part J

Terms are included from classifications in Parts C/D 1988 and Part H 2003 that may represent categories and sub-categories more than they represent actual T-M

forms names. Some portion of these terms may have been coined for the classifications, or are variant forms of actual phenomenon.

These terms include:

Non-tower
Open Tower
Closed Tower
Houses on Structure
Tower Attached to House/Building
House on Special Marine Foundations
Tower on Special Marine Foundations
Tower on Skeleton Structure

Differences Between Index & Text in Database: Major Lights:

General Characteristics of Lights terms are partially included in this coverage: Those terms that suggest a Lighthouse installation and not merely light apparatus arelisted.
Iron Towers incomplete in Index; corrected in this study.
Cast-Iron Lighthouses omitted from Index but included in this study.
Many terms beginning with "Coast" or "Guidance" and variants appear in OA in index but in text under morphology. Most are now in morphology though a physical dimension cannot be denied. Some basic forms remain in OA.
Lighted Coastal Beacon was listed in the Index but not in the Text. The term appears in Langmaid 1955 and is included in this study.
Rock Structure in index but listed as Rock Station in the text. Rock Structures appears to be an error and now changed to Rock Station in index.
Secondary Light in index was joined by Secondary Coastal Light in text. The second term is now added to the index.
Tower listed in index but omitted in text. It is now added though a very general that tends toward the vague.
Framework Tower omitted from index but now added. Framework included twice in index and the word Frame also included in index. Those are errors and now omitted.

Structural Tower on Marine Foundation. In index but omitted from text.
Skeleton Wooden Tower. Both index and tex omit "en" from Wooden.
Head Light. Text but not index includes this term. It should be added to index.
Warning Beacon Light. In text but not index.
Coastal Station Light in text only.
First Class Light in text only.
Turret in text only.
Standing Beacon appears in text but Standing Light is listed in index. Both should be Standing Beacon.
First Class Light in text only.
Reciprocating Light in text only.
Maritime Light in index should be Marine Light.

Differences Between Classifications & Database:

The Database has a plethora of overarching terms for major lights. It also has many terms for listing individual forms. By contrast, the Classifications are markedly compact. They manifest essentially a three-art subdivision: Major Structures: Sea-Girt; Major Structures: Land-Based Towers; and Non-Towers (H) and Non-Towers/Composite Structures (C/D). H has a variant classification with Major Lights (Lighthouses) as the only heading. The Classifications required limited headings while the Database had to confront the variegated forms.

Notes: Minor Lights

The classifications in C/D 1988 and H 2003 at times employed slightly different terms for categories than those found in the Database. This is also true for formulations of the categories. Nonetheless, the terms are not essentially different from those for the Databaselst ed. as well as this index/ classification.

The word "light" is not employed as frequently for C/D and H tems as it is in the Database. The classifications in the monographs often included "light" in category headings which reduced the use of "light" for T-M forms.

These Notes do not have a new terms category since any new terms are from

within the monographs not from outside sources additional sources.

Differences Between Index and Text in Database: Minor Lights

Beacon included in text as overarching term though not in index; that is now corrected. The usage is possibly slightly at variance with that of C/D where it is an undifferentiated term rather than overarching.
Bridge Navigation Light in text but not in index. It is now added.
Cylinder was listed in the Database Index but Cylindrical in text. It is now altered.
Mast Beacon/Beacon Mast in Database text but not the index. That is now rectified.
Riverine Beacon (Light) in Index but should be Riverine Light.
Spindle did not include Light in the Database index but it is included in the text and it should have been represented by a variant form in the original index.
Structure has "light" in text and that is now added.
Wooden Frame. The term is in the Database text though not in the index. It is now added.

Differences Between Parts C/D & H, and Database: Minor Lights

"Beacon" is found in C/D for undifferentiated aids under that heading. It is added though not a term of precision.
Dolphin was found only in C/D. But it is now added.
House/Hut on Structure/Pile Structure/Tripod are three group names in C/D. though not elsewhere. It is now added.
Lattice Tower required the addition of a middle word: "steel" in index.
Mast is listed in C/D but not in H or the Database. It is now added.
Pedestal Light is listed in C/D but not in H or Database. It is now added.Pile
Pyramidal is found in H but not elsewhere. It is now included.
Spindle Light has no hyphen in H.
Standard Structures on Special Foundation. This was a "catchall" term in H. It is included though it is not an individual term.
Tripod employed in C/D and is now added.

1B2 Daybeacon Termss

a) Overarching Terms

1) Basic Terms

Beaconage*/Beaconage System*
Daybeacon/Day Beacon/Day-Beacon
Fixed Beacon
Shoreside Marker*
Stationary Beacon
Unlighted Beacon/(Unlighted) Beacon

2) Shared & Foreign Language Terms

Bake
Bake (Norw)
Bak (Sw)*
Balise
Balise Fixe
Beacon
Daymark/Day Mark/Day-Mark
Stehende Bake

b) Morphological Daybeacons

1) Leading/Range Marks

Clearing Marks
Day-Beacon Range
Leading Marks
Crossing Mark*
Crossing Transit Mark*
Range Beacons
Range Marks/Rangemarks
Range Target Marks
Transit Marks

2) Signals

Dock Signals
Harbor Signals
Lock Signals
Port Signals
Tide Signals

Traffic Signals

3) Other Morphology Types

Cable Marks*
Diamond Beacon
Landfall Beacon
Mark Indicating Bank to Hug*
Mark Indicating Prohibited Entrance, or "Danger"*
Shore Marks*
Warning Regulatory Marker
Winter Marker

c) Physical Daybeacons

1) Unidimensional

(a) Established Names

Perch
Pile
Pile Beacon/Pile-Beacon
Pillar
Pole/Single Pole
Pole Beacon
Post/Post Beacon/Post Beacon Structure
Post-Mark
Spar
Spindle/Spindle Structure

(b) Local Names (Some may overlap with above terms)

Beacon Pole
Board
Braced Pole
Channel Stake
Column
Concrete Pile
Edgemark
I-Beam/I-Beam Mast
Iron Pile
Iron Pillar
Iron Post

Iron Spindle
Mast
Pipe Spindle
Post-Mark
Sandbank Beacon
Single Pile
Single Pile-Concrete/-Wood/-Steel
Single-Pile Beacon
Single Pile Structure
Single Wooden Beacon Structure/-Steel Beacon Structure/-Concrete Beacon Structure
Single Pile Wooden Structure/-Steel Structure/-Concrete Structure
Shaft/Iron-Shaft/Stone Shaft
Spindle Structure
Staff
Stake
Steel Pile/Single-Steel Pile
Stump*
Wrought Iron Mast
Wrought-Iron Pole*
Wooden Post

2) Structural Daybeacons

(a) Structural Daybeacons Employing Overarching Terms

Bak*
Bake
Bake
Beacon

(b) Established Names

Dolphin
Tripod/Tripod Beacon

(c) Local/Descriptive Names

Cylinders*
Cylindrical Structures*
Enclosed Structure*

Frame/Framework/Framework Structure/Iron Framework/Wooden Framework*
Iron Beacon/Stone Beacon/Wooden Beacon
Iron Cone/Pointed Cone
Iron Tripod
Kapen/Caapen*
Lattice-work Structure*/Latticework*
Masonry Beacon
Masonry Structure
Multiple Pile
Multiple Pile Structure/Multiple Structure/Multiple Pile Cluster Dolphin/Multiple Pile Cluster Dolphin Structure/Multiple Pile Battered Dolphin/Multiple Pile-Battered Dolphin/Multiple Pile Battered Dolphin Structure/Multiple Pile Platform Structure
Obelisks*
Pile Structure
Pile Tripod
Pipe Frame
Pyramid/Pyramidal Structure/Pyramidal Stone Structure
Skeleton Structure
Skeleton Tower
Slatted Structure
Slatted Tower
Small House
Square Frame
Stone Monument
Structure
Timber Structure
Timbered Beacon*
Tower Beacon/Beacon Tower
Triangular Structure
Varde

3) Natural Marks

Birch Tree Beacon

Cairn
Landmarks*
Petit Arbre/Small Tree*
Pricke
Stone Construction
Tree Branch (Natural Form, Tied-down Branch)*
Twig*
Withy

Notes: Daybeacons

New Terms:

Bak, Sweden 1985
Beaconage, Kerchove 1961, Naish 1985, USNOO 1969
Beaconage System, Part J
Caapen, Naish 1985
Cylindrical Structures, Edwards 1884
Enclosed Structures, Part H
Landmarks, IALA 1970
Lattice-work Structure/Latticework, Parts C/D
Obelisks, H & C 1975
Pyramidal Stone Structure, USCG Atlantic LL, Vol I, 1970
Shore Beacon, Rogers 1985
Shoreside Marker, Roger 1985
Stump, Sweden 1985
Timbered Beacon, Naish 1985
Tree Branch, IHB 1956, Parts C/D, H
Twig, Naish 1985
Wrought-Iron Pole, Heap 1889

New Mark Terms, UN 1957
Cable Mark
Crossing Mark
Crossing Transit Mark

Main Bank Mark
Mark Indicating Bank to Hug
Mark Indicating Prohibited Entrance, or "Danger"
Shore Marks

Differences Between Index and Text of Database:

(Unlighted) Beacon: "Beacon" omitted in Database.
Leading Marks: Listed in heading but not listed as component term in Database.
Pole Beacon: Listed as Beacon Pole of text.
Post Beacon Structure: Not listed in text though in index.
Single Pole: Not listed in text but in index.
Post-Mark: In text but not in index.
Single Pile-Concrete/-Wood/-Steel is now split off from Single Wooden Beacon.
Bake terms have been reworked; Bak (Sweden) has been added.
Multiple Pile forms have been reworked.

Explanations of practices and special terms in Database:

Morphological Daybeacons: character not fully known. Some may be partially or entirely lighted in character.
Physical Daybeacons b) Local names: Some terms are both physical and morphological: Channel stake, Edgemark, Sandbank beacons
Structural Daybeacons: Database merged two groups together (Open Structures, and Enclosed & Solid Structures) and this study continues that unitary approach.

Terms not in English: "Trans-national" terms (e.g. Bake) are retained. But more restricted terms not included (e.g. Swedish "Ros" for cairn).

Terms of uncertain character are retained if specific nature not easily ascertained or if they spill over into other forms (e.g. signals which can also be lighted at least in part).

Variant forms in Physical Daybeacons should probably be kept together unless a

reason for separation is present (e.g. posts and wrought-iron posts).

Differences Between Parts C/D and H and Database:

The original classification of Part C/D lacked main and variant forms. Part H added main and variant subdivisions with many specific forms in the variant classification only. Two terms in the Classification proved to be questionable: Lattice-work Structure/Latticework were employed in C/D and H but are not fully accurate; they were replaced by Slatted Structure in the Database. The term Artificial Marks was employed in H for built-forms; constructed forms would have been preferable.

1C Acoustical and Radio Aids

1C1 Acoustical Aids

a) Fog Signal Overarching Terms

- Acoustic Aids**
- Acoustical Signal
- Aerial Fog Signal
- Air Signal*
- Alarm Signal
- Automatic Foghorn
- Audible Aid/Audible Signal
- Coast Fog Signal/Coastal Fog Signal*
- First Class Fog Signal*
- Fog Horn/Fog-Horn/Foghorn
- Fog Signal/Fog-Signal/Fogsignal
- Fog Signal Apparatus/Fog-Signaling Apparatus*
- Fog Signal Emitter
- Fog Signal Station/Fog-Signal Station
- Fog Warning Signal
- Fog Whistle
- Guiding Signal**
- Horn
- Long-Range Signals*
- Major Fog Signal
- Marine Fog Signal**
- Minor Fog Signal
- Obstruction Signal
- Occasional Fog Signal
- Secondary Fog Signal
- Short Range Signals*
- Sound Buoy
- Sound Emitter
- Sound Signal/Sound-Signal

Sound Signal Buoy
Sound Signalling Device*
Steam Fog Alarm**
Steam Fog Signal
Trumpet*

b) Diaphone, Diaphragm, Reed, & Siren Signal

1) Diaphone Signals

Air Diaphone
A-Type/B-Type/C-Type/C-Type Diaphone/F-Type/F Type
Diaphone/Triple-F Signal/Two-Tone F-Type, F2T/G-Type/G-Type
Diaphone/K-Type/Twin K Type Diaphone/L-Type/Twin K Type Diaphone*
Diaphone
Diaphone Horn/Diaphone Fog Horn/Diaphone Fog Signal/ Diaphone Signal
Diaphone Two-Tone/Two-Tone Diaphone
Double-Toned Fog Horn
Steam Diaphone
Two-Tone Diaphone
Vertical Diaphone

2) Diaphragm Signals

(a) Overarching Terms

Diaphragm
Diaphragm Horn/Diaphragm Fog Signal
Horn
Horn, Diaphragm
Misnomers: Air Whistle, Steam Whistle

(b) Diaphragm Signals-Compressed Air

Air Horn
Air Diaphragm Horn**
Chime/Chime Signal/Air Chime Diaphragm*
Compressed-Air (Diaphragm) Horn
Diaphragm Air Horn*
Horn, Chime, Diaphragm/Horn, Diaphragm, Chime
Horn, Compressed-Air

Horn, Diaphragm
Supertyfon/Supertyfon Air Horn*/Supertyfon Air Signal*/Supertyfon Fog Signals*/Supertyfon Horn*/Supertyfon Signal*/Two-note Supertyfon*/ Leslie-Supertyfon Air Whistles*
Tyfon/Tyfon Air Horn*/Tyfon Horn/Tyfon Signal Apparatus/Typhon

(c) Oscillator Signals

Diaphragm Horn, Electric
Diaphragm Horn, Electric Oscillator Type
Diaphragm, Oscillator/Diaphragm (Oscillator
Electric Air Oscillator**
Electric Fog-Horn/Electric Fog Horn
Electric Fog Signal
Electric Fog Signal Apparatus
Electric Fog Horns*
Electric Horns*
Electric Diaphragm Emitter
Electric Diaphragm Horn**
Electric Emitter*/Electric Sound Emitter*
Electromagnetic Horn (Electromagnetic Air) Oscillator
Electromagnetic Oscillator
Electric Fog Signal*
Electric Signal*
ELU 500 Pure Tone Electric Emitter*
ELU 800 Electric Emitter*
Emitter*
High Fidelity Electric Fog Signal*
Horn, Electric Magnetic Oscillator
Horn, Oscillator
Lighted Horn Buoy
Low Power Electric Sound Signal*
LP HF Electric Emitter*
Nautophone
Oscillator

Pure Tone Signal
72-Tannoy-Speaker Electric FS*
Short Range Electric Signals*
Triple Frequency Emitter Stack*
Triple Frequency Fog Signal*

3) Reed Horns

Air Trumpet
Barker Horn*/Barker Reed*
Daboll's Fog Horn*
Daboll Reed*
Daboll Trumpet/Daboll's Rotating Trumpet*
Equine Trumpet
Fog Trumpet
Hand Fog Reed Horn/Hand-Horn/Hand Horn
Hand-pumped Reed Signal*
Holmes Hand Horn*
Holmes Reed*
Manual Reed*/Manual Reed Horn*
Norwegian Horn*
Reed
Reed Fog Signal
Reed Horn/Reed-Horn/*Reed Horn Fog Signal
Reed Signal
Reed Trumpet
"Standard Reed"*
Steam Trumpet/Trumpet
Stentor Reed*/Stentor Horn*

4) Sirens

Air Siren
Automatic Siren*
Brown Siren*
Brown Syren Trumpet*
Compressed Air siren*
Disc Siren*
Double-Siren**

Electric Motor Siren*
Electric Siren
Five-inch Sirens: Automatic 5-inch Siren/5-inch Automatic Siren/5-inch Siren/5-inch Disc Siren/5-inch Service Siren/Service 5-inch
Siren/Twin 5-inch Siren*
Fog Siren/Fog-Siren
Fog Trumpet*
High & Low Siren*
Lighthouse Fog Siren*
"Note" Sirens: Automatic Two-note Siren/Double-note Siren/Motor-driven Two-note Siren/Single-note Siren/Two-Note Siren/Two-note,
"Police Type" Siren
Port Siren*
Rayleigh Siren*
Rayleigh Trumpet*
Secomark Siren*
Service Siren*
Seven-inch Sirens: 7-inch Cylindrical Siren/7-inch Diameter Siren/7-inch Disc Siren/7-inch Motor-driven Disc Siren/7-inch Single-note Siren/7-inch Diameter Siren/7-inch Siren*
Single Automatic Siren*
Siren
Siren Fog Signal/Siren Fog-Signal**/Steam-Powered Signal*
Siren Buoy
Sireno/Siren-o/Electric Sireno
Steam-Powered
Steam Siren/Steam-Siren/Steam Siren
Syren

c) Explosive, Percussion, Submarine & Whistle Signals

1) Explosive Signals

Acetylene Fog Gun/Acetylene Fog-Gun/Acetylene Gun
Acetylene-Gas Gun/Gas Gun

Automatic Fog Gun
Breech-Loading Gun*
Cannon
Cannonade*
Clockwork Explosive Fog Signal*
Eighteen-Pounder Gun*
Explosions**
Explosives*/**
Explosive Charge
Explosive Coast Fog-Signal**
Explosive Emitter
Explosive Fog Signal/Fog Explosive/Fog Explosive Signal
Explosive Signal
Explosive Sound Signal
Gas Explosive Signal*
Fog Cannon
Fog-Signal Gun
Fog Gun/Fog-Gun
Gun/Gun Signal
Howitzer*
Moyes Gun*
Muzzle-Loaded Gun*
Radio-Controlled Acetylene Gun*
Rocket
Sound Rocket/Sound-Rocket
Special Gun*
Tonite Explosive Signal

2) Percussion Signals
Percussion Aids/*Percussion Devices
Aerial Bell
Automatic Bell
Automatically-Operated Fog Bell*
Bell
Bell Boat/Bell-Boat/Bell-Ships
Bell Buoy/Bell-Buoy

Brown's Bell Buoy
Carillon Buoy
Compressed-Gas Bell Buoy
Drum**
Electric Bell**/Bell Electric**
Fog Bell/Fog-Bell/Fogbell
Fog Gong
Gong
Gong Buoy
Hand-Operated Bell*
Lighted Bell Buoy
Lighted Gong Buoy
Mechanically Operated Fog Bell*
Perpetual Fog-Bell
Steam Gong
Unlighted Bell Buoy/Unlighted Bell-Buoy
Wave-Actuated Bell*
Wave-actuated Buoy (Bell)*

d) Submarine Signals
Air Oscillator*
Automatic Submarine Signal
Electric Oscillator*
Fessenden Oscillator**
Submarine Bell/Submarine-Bell
Submarine Fog-Bell
Submarine Fog Signal
Submarine Oscillator/Oscillator
Submarine Signal
Submarine Signalling/Submarine Signalling System*
Submarine Sound Signal
Submerged Bells
Underwater Bell
Underwater Oscillator
Underwater-Signal

e) Whistles

Air Fog Whistle/Air Whistle
Automatic Buoy/Automatic Signal Buoy
Courtenay's Whistling Buoy
Crosby Automatic Fog Signal
Fog Whistle/Fog-Whistle
Leslie-Tyfon Steam Whistle**
Lighted Whistle Buoy
Locomotive Whistle
Self-Acting Fog-Horn
Ship's Whistle*
Six-inch Whistle*/Twelve-inch Whistle*
Sound Signal Buoy
Steam Fog Alarm**/Steam-Whistle Fog Alarm*
Steam Fog Signal
Steam-Powered Whistle
Steam Whistle/Steam-Whistle/Steam Fog-Whistle/Steam-Whistle Fog Signal*
Vernon-Smith Whistle**
Wave-Actuated Whistle
Whistle
"Whistle" (Secomark)*
Whistle (Misnomer)
Whistle Buoy
Whistling Buoy/Whistling-Buoy
Unlighted Whistle Buoy

f) Miscellaneous Signals
"Bird Fog Signal"*
Echo Boards*
Natural Fog Signal/Natural Fog-Signal
Natural Signal**
Natural Sound-Warnings
Piston Horn*/Electric Piston Horn*
Talking Beacons*

Notes

New Terms:

Most additions to Fog Signal terms are generated by two groups of major sources: terms appearing in Part J from several sources (though not found in Part Ii), and many terms from Renton's *Lost Sounds* (2001). There are also a few terms from USCG 1953 and one term from Parts C/D and H. A single asterick attached to a term denotes a term from Renton. Double astericks denote additions other than Renton.

Some terms in Part J either are misnomers or they were coined to meet the context of a monograph encompassing all forms of Transportation-Markings. Underwater Diaphragm Fog Horn seemingly is a descriptive term for the Fessendent Oscillator. Bell Float has not been located in any source. Mechanical Bells was possibly coined to distinguish a basic marine aid from other forms of bells. Acoustic Aids and Marine Fog Signals are retained though possibly not of official standing. Daboll's Trumpet lacks an apostrophe in known sources.

Natural Signal, Adams 1870
Drums, Edwards 1884,154; Brock 1974, 19. Admittedly this is an old term but seemingly it did not appear in any previous source employed for T-M studies.
Echo Board, Putnam 1933
Explosive Coast Fog-Signal, Edwards 1884, 167
Fessenden Oscillator, Fay 1963, 12-13
Siren-Fog Signal, Edwards 1884, 177. Renton includes this term but without a hyphen.
Double-Siren, Edwards 1884, 177.
Leslie Supertyfon Air Whistle, Leslie Co.
Leslie Tyfon Steam Whistle, Leslie Co.
Vernon-Smith Whistle, Edwards 1884, 168
Steam Fog Alarm, Brock 1974, 17.
"Guiding Signal," Edwards 1884, 175. This is an informal term and of a vague nature. It could refer to a lightship as much or more than a fog signal.

Explosives appears in Parts C/D and in H. Part Ii adds a qualifying or explicating term to the basic term in all cases but never the core term alone. Renton also includes Explosives.

Air Diaphragm appears in USCG 1953, 25-2 but it was not included in Part Ii.
Electric Air Oscillator also appears in USCG 1953.
Electric Diaphragm Horn also appears in the aforementioned source as does:
Steam Diaphragm Horn (formal name for USCG is Horn, Diaphragm (Steam).
Bell, Electric or simply Electric Bell is a final USCG entry.
Hand-Operated Bell*
The term Cannon---Guns in USCG seems to be a combination of fog signal either cannon or gun in form.

New Terms: Renton

Air Chime Diaphragm
Air Diaphragm Horn
Air Oscillator
Air Signal
Automatically-Operated Fog Bell
Automatic Siren
Barker Horn/Barker Reed
"Bird Fog Signal"
Breech-Loading Gun
Brown Siren
Brown Syren Trumpet
Cannonade
Coastal Fog Signal
Clockwork Explosive Fog Signal
Compressed Air Siren
Daboll's Fog Horn
Daboll Reed
Daboll's Rotating Trumpet
Diaphragm Air Horn
Disc Siren

Eighteen-Pounder Gun
Electric Air Oscillator
Electric Diaphragm Horn
Electric Fog Horns
Electric Emitter/Electric Sound Emitter
Electric Fog Signal
Electric Horn
Electric Motor Siren
Electric Oscillator
Electric Signal
ELU 800 Electric Emitter
ELU 500 Pure Tone Electric Emitter
Emitter
Explosives
Explosive Coast Fog-Signal
First Class Fog Signal
Fog Trumpet
Gas Explosive Signal
Hand-pumped Reed Signal
High & Low Siren
High Fidelity Electric Fog Signal
Holmes Reed
Howitzer
Lighthouse Fog Siren
Long-Range Signals
Low Power Electric Sound Signal
LP HF Electric Emitter
Manual Reed/Manual Reed Horn
Mechanically Operated Fog Bell
Moyes Gun
Muzzle-Loaded Gun
Norwegian Horn
Percussion Aid
Percussion Device
Piston Horn/Electric Piston Horn

Port Siren
Radio-Controlled Acetylene Gun
Rayleigh Siren
Rayleigh Trumpet
Reed-Horn
7-inch Siren
Special Gun
Submarine Signalling System
Secomark Siren
Service Siren
72-Tannoy-Speaker Electric FS
Single Automatic Siren
Short Range Electric Signals
Short Range Signals
Ship's Whistle
Six-inch Whistle
Sound Signalling Device
"Standard Reed"
Steam-Powered Signal
Steam-Whistle Fog Alarm
Steam-Whistle Fog Signal
Stentor Reed/Stentor Horn
Supertyfon Air Horn/Supertyfon Air Signal/Supertyfon Fog Signals/Supertyfon Signal/Two-Note Supertyfon
Talking Beacon
Triple Frequency Emitter Stack
Triple Frequency Fog Signal
Trumpet
Twelve-inch Whistle
Twin 5-Inch Siren
Twin K Type Diaphone
Wave-actuated Bell
Wave-actuated Buoy (Bell)
"Whistle" (Secomark)

Differences Between Index and Text of Database:

Batching of terms in the Database has been reduced in this study which thereby simplifies entries.

Alarm Signal was present in the text but not in the index of the Database.
Fog-Signalling Apparatus in index appeared as Fog Signal Apparatus in text.
Horn in index for OA but only in Diaphragm for text; it probably should appear in both places.
Steam Fog Alarm in Brock 1974 refers to Diaphone signal but can appear in OA as well.
Diaphone Fog Horn appears as two words in text but one in index.
Steam Diaphone: any extant sources have not been located.
Double-Tone Fog Horn in index but Double-Toned in text.
Misnomers refer to Whistles which text includes under Whistles but retained here as well.
Chime Signal in text but in index.
Diaphragm Signals are unitary in text but subdivided into OA and Compressed-Air in index. However, nuanced differences may be misrepresented with that subdivision.
Horn (for Reed) does not appear in text. But OA entry notes refer to Reed.
"Police Type" siren appears in text but not in index; it is now added.
Explosive Signals are formulated differently in index than in text. Batching is less a feature of the index.
Fog Gong not in text.
Lighted Bell Buoy not in text but to be added. Index included in Percussion as well as in Whistles. It is now removed from Percussion.
Self-acting Fog-Horn appears in Whistles for text.
Submarine Fog Signal not in text. An uncertain term but retained for now.
Submarine Marine Fog Signal. Second "Marine" should be omitted.
Courtenay's Whistle Buoy in index becomes Courteney Whistling Buoy in text.
Sound Signal Buoy not in text.
Steam Gong not in index, but now added.
Steam-Whistle not in index, but now added.
Steam Fog-Whistle not in index, but now added.

Unlighted Whistle Buoy not in text. This should probably be added to text.

Differences Between Classifications & Database:

The Classifications employed a range of overarching terms. Only one, Fixed Fog Signals, does not appear in the Database. The term differentiates fixed location signals from floating forms. The term has been added to this study. One other term, Explosives, has been added to the study from the Classifications. The Classifications have relatively limited terms. For that reason terms were often divied between groups with a variety of forms, and single types in which distinct forms had a unitary nature. The Database did not follow that pattern because many more terms were present.

1C2 Radio Aids

a) General Overarching Radio Aids Terms
- Ground-Based Navigation Aids*
- Electronic Aids to Navigation
- Electronic Navigation Aids
- Electronic Navigation Systems
- Marine Navigation Systems
- Navigation Aids
- Navigational Aids
- Position Fixing Systems
- Radio Aids
- Radio Aids to Marine Navigation
- Radio Aids to Maritime Navigation
- Radio Aids to Navigation
- Radio Navaids*
- Radio Navigation Aids/Radionavigation Aids
- Radio Navigational Aids
- Radionavigation Systems/Radio Navigation Systems

b) Radiobeacon Overarching Terms
- Beacon
- Marine Radiobeacons
- Marine Nondirectional Beacon*

- Maritime Radio Beacons*/Marine Radiobeacons*
- Omnirange/Omnidirectional Range
- Radiobeacon/Radio Beacon/Radio-Beacon/Radio Beacon Station/ Radiobeacon Station*
- Radio Beacon Fog Signal
- Radio Fog Signal/Radio Fog-Signal
- Radiophare
- Wireless Beacon
- Wireless Fog Signal
- Wireless Lighthouse

c) Radiobeacons-Main

1) Directional
- Course Beacon
- Directional Beacon/Directional Radiobeacon/Directional Beacon (Radio Ranges)/Directional Radio Beacon
- Direction Finding Beacon/DF Beacon

2) Nondirectional
- Non-directional Radiobeacon/(Nondirectional) Radiobeacon
- Circular Radiobeacon/Circular Beacon
- Fixed Non-Directive Marine Beacon*

3) Rotating
- Revolving Radiobeacon
- Rotating Loop Radiobeacon
- Rotating Radiobeacon/Rotating Beacon
- Rotational Pattern Radiobeacon

4) Composite
- Omni-Radio Beacon
- Omnidirectional Beacon

d) Radiobeacons-Other
- Aero Radio Beacon
- Aeromarine Radio Beacon
- Automatic Radiobeacon*
- Calibration Station
- Class A Radiobeacon*
- Coastal Beacon*

Equisignal Beacon
Marker Radio Beacon/Marker Beacon/Marker/Radio-Marker Beacon
QTG Service/Radio Station with QTG
Radiobeacon Buoy
Radio Compass Station/Radiocompass Station*
Radio Direction Finder (RDF) Station/Radio Direction-Finding Station
Secondary Radio Aids to Navigation
Short-Range Radiobeacon
VHF Radio Lighthouse Beacon

e) Radiobeacons-Character of Operations
Continuous Carrier Radio beacon
Continuous Radiobeacon
Dual Carrier Radiobeacon
Group Sequence Station
Sequenced Radiobeacon

f) Hyperbolic Aids-Overarching Terms, Loran & Decca
1) Overarching Terms
Hyperbolic Aids
Hyperbolic Navigation Systems
Hyperbolic Radio-Navigation Systems*

2) Decca
Decca
Decca Chain
Decca Navigator/Decca Navigator System/Decca Navigator Chain
Decca Lambda (see also Lambda)
Delrac
Dectra
Dectra Chain
Hi-Fix
Lambda (see also Decca Lambda)
Mini-Fix
QM
Sea-Fix

Trunk Route Decca
Two-Range Decca

3) Loran
Chaika/Chayka
Cyclan
Cytac
Differential Loran-C/DLoran*
Electronic Position Indicator (EPI)
Gee
HF Loran/H.F. Loran*
Hyperbol
Loran
Loran-A, -B, -C, -D, -E
Loran Chain
Loran GNSS (Logic)*
Loran System
LF Loran/L.F. Loran*/Low Frequency Loran/Low-Frequency Loran*
Standard Loran
SS Loran/S.S. Loran*/Skywave Synchronized Loran

g) Hyperbolic Aids-Single & Quasi-Single
Differential Omega
Hi-Fix
Omega
POPI
Radux
Radux-Omega*
Rana
Toran

h) Partially Hyperbolic Aids
1) Consol
BPM-5
Consol
Consolan
Elektra/Electra
Sonne

Two-Aerial Consol
2) Raydist
Lorac
Hyperbolic Raydist
Pure-Range Raydist
Raydist
Raydist, Type DM, Type DR, Type E, Type M, Type N
i) Radar Aids-Reflectors
1) Overarching Terms & Corner Reflectors
Radar Reflectors
Reflectors*
Corner Reflectors
Octahedral Cluster
Pentagonal Reflector
Radar Corner Reflector
Trihedral Reflector
2) Other Radar Reflectors
Dielectric Reflectors
Dihedral Reflectors
Luneberg Lens/Luneberg Reflector
Parabolic Reflector
Radar Buoy
Radar Reflector Buoy
Right Angle Reflector
j) Radar Aids-Secondary & Primary Radar
1) Overarching Terms & Primary Aids
Microwave Position Fixing Systems
Primary Radar
Radar Aids*
Radar Aids to Navigation
Radar Navaids*
Ratan
2) Shoran
Electronic Position Indicator
Hiran

Oboe
Shiran
Shoran
3) Transponder Beacons
Cross-Band Ramark*
Derveaux
In-Band Racon*
In-Band Ramarks*
Racon
Racon Responder Enhancer
Radar Beacon
Radar Marker*
Radar Marker Beacon
Radar Marker Buoy
Radar Navaids*
Radar Responder Buoy*
Radar Transponder Beacon*
Ramark
Responder Beacon
Secondary Radar
Transponder/Transponder Beacon
k) Satellite Navigation Aids
1) Overarching & Other Terms
Marine Satellite Systems
Navigational Satellite
Satellite
Satnav/Satellite Navigation/Satellite Navigation System
Satellite-Based Navigation*/Satellite-Based System*
Satellite-Based Radionavigation System*
Aerosat
Starfix
2) GPS
Differential GPS
Global Positioning System (GPS)
Glossnass

Maritime Differential GPS (DGPS)
Maritime GPS*
Navstar/Navstar-GPS/Navstar GPS*
NGPS*
Omnistar*
WAAS & LAAS in Marine Navigation*

3) Navy Transit Satellite Navigation Systems
Cicada/Tsikada*
Navsat i and Navsat ii
Navy Transit Satellite Navigation System
NNSS/Navy Navigation Satellite System
Transit/Transit Navigation Satellite System
US Navy Satellite System/US Navy System

4) Other Satellite Systems
DGNSS, Differential DGNSS*
Conventional DGNSS*
Precise DGNSS*
Galileo*
GNSS, Global Navigation Satellite System*/Global Navigation Satellite System (GNSS)*
US Air Force System

l) Other Radio Aids

1) Radio/Sound Aids
Distance Finding Station
Radio Sonobuoy
Rafos
Sofar
Sonobuoy
Sono-Radio Buoy
Synchronized Radiobeacon & Air Fog Signal
"Talking Beacon"

2) Miscellaneous Aids
A-N Radio Range
Benito
Fixed Non-Directive Marine Beacon*

Hydrodist
Navaglobe & Navarho
Omnidirectional Range
Omnirange

Notes

New Terms:

Automatic Radiobeacon, O'Brien 1983
Class A Radiobeacon, O'Brien 1983
Coastal Beacon, FRP 1990
Fixed Non-Directive Marine Beacon, Keen 1938
Global Navigation Satellite System (GNSS), ICAO 1997
Marine Nondirectional Beacon, Williams 1992
Low-frequency Loran, Casabona, Hall 1947
H.F. Loran, R.A. Smith 1948
S.S. Loran, R.A. Smith 1948
L.F. Loran, R.A. Smith 1948
Radar Marker, USNOO 1969
Radar Transponder Beacon, Grover 1957
Radux-Omega, Blanchard 1991
Reflectors, Williams 1992
Radar Responder Beacon, IRE 1949
Cross-band Ramarks, Wylie 1976
In-band Racons, Wylie 1976
In-band Ramarks, Wylie 1976

APN
Explosions, 1938
Fog-Signal Station, 1914
Fog-Signaling Apparatus, 1938
Radiobeacon Station, 1928
Radiocompass Station, 1928
Short Range Aids to Navigation, 2002

Visual & Audible Aids to Navigation, 1977
WAAS & LAAS in Marine Navigation, 2002

Hofmann-Wellenhof 2003:
Conventional DGNSS
DGNSS, Differential GNSS
D Loran/Differential Loran-C
Galileo
GNSS, Global Navigation Satellite System
Ground-based Navigation Aids
Loran GNSS (Logic)
Maritime GPS
Maritime Radio Beacon
Navstar GPS [without hyphen]
NGPS
Omnistar
Precise DGNSS
Satellite-based Navigation
Satellite-based System
Tsikada [alternate name for Cicada]

NIMA
Maritime Differential GPS (GPS)
U.S. Air Force System

Parts C/D 1988:
Hyperbolic Radio-Navigation Systems

Part H 2003:
Radar Aids

Part J 2002:
Radar Navaids
Radio Navaids

Differences Between Index & Text in Database:

Marine Navigation Systems was replaced by Maritime Navigation Systems in index. It now reverts to Marine.
Radio Aids to Marine Navigation is in index but not in text. However, Kemp includes term and it is therefore retained.
Radio Navigation System appears in text but omitted from index. It is now added.
Invisible Lighthouse dropped is moved from OA to Other Forms in index.
Directional Radiobeacon segment has undergone several changes that place it in alignment with sources.
Rotational Pattern Radiobeacon in text but index substituted Rotating; index now changed to Rotational.
Aero Radio Beacon should be Aero Radiobeacon in index.
Marker Radiobeacon seemingly has one form in which Radiobeacon is one word.
Radio Compass Signal should end in Station rather than Signal.
Continuous Carrier Radio Beacon in text; index now reflects that formulation.
Dectra was omitted from text though a portion of entry retained. The title is now restored.
Electronic Position Indicator. The acronym of EPI is as added as a supplement.
Radar Corner Reflector in text was altered to Racon Corner Reflector in the index. Index now includes Radar Corner Reflector.
Derveaux included in text but omitted in index; it is now added to index.
Racon Response Enhancer should be Racon Responder Enhancer and now corrected.
Radar Responder Beacon in text. Radar now added to Responder Beacon in index.
Navsat in index contrasts with a more complex formulation in text.
Sound/Radio Aids Forms now replaced by Radio/Sound Aids.
Sono-Radio Buoy in text now added to index.
Miscellaneous Forms in text replaces Miscellaney in index.
Talking Beacon in text and now also in index.

Differences Between Parts C/D & H, and the Database:

Parts C/D included a single classification while Part H had both main and variant forms. Two terms in the Classifications were not added to the Database but have been

added to this study. Radiobeacons were a main unit for C/D and contained six specific forms. H had a single main term and five variant forms. Satellite forms are limited in the Classifications. Overarching terms for the Classifications are markedly different from those of the Database. C/D uses Electronic Transportation Markings; possibly coined by the compiler. H uses Electronic Aids and Marine Electronic Aids. Both tend to the vague and are not established terms. A sub-arching term in H, Ground- & Spaced-Based Hyperbolic Systems is likely a "home-grown" term as well. Part B includes Short Range aids and Long Range Aids under the term Electronic Aids to Navigation. Those terms appear in the literature including references to visual marine aids as well as materials on electronic aids. The terms are therefore included elsewhere.

CHAPTER TWO

TRAFFIC CONTROL DEVICES

2A Light & Sound Signals
2A1 Traffic Control Signals
- a) Overarching Terms & General Note
  - General Note
  - Traffic Light Signals
  - Traffic Signals
  - Signals
  - Road Signals
  - Highway Traffic Signals
  - Signals for Vehicular Traffic
  - Road Signalling
  - Traffic Lights/Traffic-Lights*
  - Light Signals
  - Lighted Traffic Signals*
  - Street Traffic Signals
  - Lights*
  - Electric Traffic Lights*
  - Signal Lights*
- b) Specific Entries
  - General Note
  - Traffic Control Signals
  - Street Traffic Signals
  - Signals for Vehicular Traffic [two entries: see also OA]
- c) Traffic Signal Operation
  - General Note
  - Automatic Signal
  - Fixed-Time Signal/Fixed Time Signal
  - Pretimed Signal
  - Traffic-Actuated Signal
  - Traffic-Adjusted Signal
  - Vehicle-Actuated Signal

2A2 Pedestrian Signals
- Accessible Pedestrian Signals*
- Pedestrian Signals
- Pedestrian Crossing Signals*
- Signals for Pedestrians
- Pedestrian-Operated Signals
- Pedestrian Traffic Lights*

2A3 Traffic Signals-Other Types
- Cyclist Signals*
- Freeway Entrance Ramp Control Signals*/Traffic Signals for Freeway Entrance Ramps/Traffic Signals at Freeway Entrance Ramps/Ramp Control Signals*
- Emergency Signals*/Emergency-Traffic Signals/Emergency-Vehicle Traffic Control Signal*/Traffic Control Signals for Emergency Vehicles
- Ferry-Boat Landing Signals*
- Flash Lights*
- Low-Flying Aircraft Signals*
- Traffic Signals for One-Lane, Two-Way Facilities
- Traffic Lights for Special Vehicles*
- Lane-Use Control Signals/Lane Control Signals/Lane Direction Signals/ Lane Direction Control Signals
- Movable Bridges Signals/Drawbridge Signals/Traffic Signals at Drawbridges/Traffic Control Signals for Movable Bridges/Swing Bridges
- Portable Traffic Control Signals*
- Robots*
- School Area Traffic Signals*
- Temporary Traffic Control Signals*
- Vibrotactile Pedestrian Device*

2A4 Flashing Beacons

a) Overarching Terms
- Flashing Beacons
- Beacons
- Traffic Beacons

b) Specific Entries
- Flashing Yellow Beacon/Flashing Red & Yellow Beacon
- Flashing Warning Beacon*
- Hazard Identification Beacon
- Intersection Control Beacon
- Speed Limit Sign Beacon
- Stop Sign Beacon/Stop Beacon*
- Warning Beacon

c) Lighting Devices
- General Note
- Lighting Devices
- Floodlights
- Hazard Identification Beacon
- Steady Burning Electric Lamps/Steady-Burning Electric Lamps*/ Steady-Burn Electric Lamps*
- Warning Lights
  - Type A, Low Intensity Flashing Warning Lights
  - Type B, High Intensity Flashing Warning Lights
  - Type C, Steady-Burning Lights/Type C, Steady-Burn Warning Lights*
  - Type D, 360-degree Steady Burn Warning Lights*
- Special Lighting Units
- Advance Warning Arrow Panels, Types A, B, C/Arrow Panels*
- In-Roadway Lights* [Review]

2A5 Grade Crossing/Level Crossing Signals
- Active Grade Crossing Warning System*
- Active Traffic Control System*/Active Traffic Control Devices for Highway-Rail Grade Crossings*
- Autoflag*
- Automatic Flagman*
- Flashing Light Signals/Flashing-Light Signals
  - Flashing-Light Signals:
  - Post Mounted*
  - Overhead Structures*
- Highway Grade Crossing Warning Devices*

No Right [Left] Turn Signals
Railroad Grade-Crossing Signal
Train Approach Signals/Train-Approach Signal
Traffic Control Signals at or Near Highway-Rail Grade Crossing*/Traffic Control Signals Near Highway-Rail Grade Crossing*
Traffic Lights at Level Railroad Crossings*
Wig Wag Signal

2A6 Sound Traffic Signals*
Movable Bridge Signals* [Visual/Sound]
Audible Pedestrian Signals*
Grade/Level Crossing Signals*[Visual/Sound]
Road Sound Signals*

Notes

New Terms: Wikipedia

Note: The online and contributor-generated encyclopedia Wikipedia offers an extensive introduction to what they term Traffic Lights. Regretably, the author(s) are not given. Traffic Lights, an infrequent term in official publications and the literature, is a prominent term on the internet. That is reflected in Wikipedia.

Lights
Electric Traffic Lights
Signal Lights
Pedestrian Traffic Lights
Traffic Lights for Special Vehicles
Traffic Lights at Level Railroad Crossing
Traffic-Lights

CASATC 1950

Flash Lights

Robots

Kuemmel 2000

Audible Pedestrian Signal

Lay 1990

Pedestrian Crossing Signals

Solomon 2001

Automatic Flagman

New Terms: US MUTCD 1988; 2000 & 2003

Accessible Pedestrian Signals, 2000, 2003
Active Grade Crossing Warning System, 2000, 2003
Active Traffic Control Devices for Highway-Rail Grade Crossings, 2000, 2003
Active Traffic Control Systems, 2000, 2003
Arrow Panels, 2000, 2003
Emergency-Vehicle Traffic Control Signal, 2000, 2003
Flashing Lights: Post Mounted, Overhead Structures, 2000, 2003
Freeway Entrance Ramp Control Signals, 2000, 2003
Portable Traffic Control Signals, 1988
School Area Traffic Signals, 1988
Steady-Burn Electric Lamp, 2000, 2003
Stop Beacon, 2000, 2003
Temporary Traffic Control Signal, 2000, 2003
Traffic Control Signals at or Near Highway-Rail Grade Crossing, 2000, 2003

Traffic Control Signals Near Highway-Rail Grade Crossing, 1988
Vibrotactile Pedestrian Device, 2000, 2003
Warning Lights, Type D, 360-degree Steady-Burn Warning Lights, 2000, 2003

New Terms: From Parts E & H

Cyclist Signals, E and H
Emergency Signals, E and H
Ferry-Boat Landing Signals, E
Flashing Warning Beacon, E
In-Roadway Lights, E
Low-Flying Aircraft Signals, E
Miscellaneous Signals, E
Ramp Control Signals, E
Steady-Burning Electric Lamps, E [Database & MUTCD 1988 lack hyphen]

New Terms From Part J

Autoflag
Highway Grade Crossing Warning Devices
Lighted Traffic Signals
Lighted Wig-Wag
Road Sound Signals

Differences Between Index and Text of Database:

The chapter heading in the Database was that of Traffic Signals. The heading is now changed to Light and Sound Devices. There are two reasons for the change: some signals have a sound dimension, and some lighted devices are in a fixed mode of operation rather than in a signal mode. There is also a "Vibrotactile pedestrian device" which is not represented in the title.

The Sound Traffic Signals category is absent in the Database but it is now added. Railroad-Highway Grade-Crossing Signal in Database index appears as Railroad-Grade Crossing Signal in Database text. Grade/Level Crossing Signal added by compiler in order to encompass signal lights whether under grade or level headings.

Some terms in the Index are listed line-by-line while a batching arrangement is followed in the Text. These terms include Pedestrian Signals, and Traffic Signals-Other Forms.

Traffic Signals for One-Lane/Two-Way Facilities in the Index contrasts with similar wording in the Text except for a comma in the Text. The Index now displays that punctuation.

Differences Between Parts B, E & H, and the Database:

The term Warning Beacon was employed by US FHA beginning in 1997. It replaced Hazard Identification Beacon. The latter term is also included in the Database though omitted by Parts E and H.

[Level (Railway) Crossing Signals employed in Parts E and H rather than Grade Crossing/Level Crossing Signal or Level (Grade) Crossing Signals. The source of the Parts E and H formulation is unclear.

Part B includes an older classification that is occasionally different from with newer classifications and the Database. Differences include:
Traffic Beacon is used in place of Flashing Beacons (This also true of Part H, 2nd edition though not in Part E, 2nd edition).
Lane-Control Signals is used in place of Lane-Use Control Signals
Emergency Traffic Signals rather than Emergency Signals
One-Lane/Two Way Signals are included while the Database has a variant form; Parts E & H lack the term.

Part E, 2nd edition, includes Ramp-Control Signals, and Miscellaneous Signals. Neither are in the Database either under those formulations or alternate

formulations.

Part H omits the hyphen from Lane-Use Control Signal. The 2nd edition (2003) adds Movable Bridge Signals, Emergency Signals, and Lighting Devices. The Database includes those terms though the first two are in alternate forms.

Audible Pedestrian Signals first appears in Part J predating Part Iii (the Database), Part E (lst ed), and Part H (1st ed). Part J includes Draw Bridge Signals with Movable Signals as a subordinate term. The Database has an alternate version though Movable Signals is primary. Moveable employed instead of Movable in some of the classifications. This study includes Movable only.

2B Warning Signs
2B1 Categories & Overarching Terms
- a) Categories
  - Overarching Terms
  - Roadway Alignment Signs
  - Roadway Conditions Signs
  - Intersection Signs
  - Intermittent Moving Hazards Signs
  - Construction & Maintenance Signs
  - Non-Vehicular-Related Hazards Signs*
  - Roadway-Related Hazard Signs*
  - Temporary Traffic Control Signs*
  - Traffic-Related Hazards Signs*
  - Other Dangers Signs
  - Other Hazards Signs
- b) Overarching Terms
  - Introductory Note
  - Advance Warning Signs
  - Caution Signs
  - Danger Signs
  - Danger Warning Signs
  - Giving Warning of Danger Signs
  - Warning Signs
  - Warning Signposts

2B2 Roadway Alignment Signs
- a) Introductory Note & Overarching Terms
  - Curves
  - Dangerous Curves
  - Dangerous Bends/Bends
  - Horizontal Alinement Changes/Changes in Horizontal Alignments*/ Roadway Alignments
  - Turns
- b) Specific Signs

Bad Corners
Bend, L, R
Double Bend, L, R/Double Bend to R, L
Left Bend/Right Bend
Single Bend to the R, L
Dangerous Corner
Chevron/Chevron Alignment
Combined Horizontal Alignment/Advisory Speed Sign*
Combined Horizontal Alignment/Intersection Sign*
Curves, L, R/Single Curve, L, R
Curve Speed Sign*
Hairpin Curve Sign*
Limited Sight Distance
Sharp Curve
270 degree Curve Sign*
Reverse Curve, L, R
Reverse Turn, L, R
Sharp Turn/Bend
Turn, L, R/Single Turn, L, R
Winding Road/Winding Road to L, R/Right Winding Road/Left Winding Road
Large Arrow Sign/Directional Arrow/Bi-Directional Arrow/One-Direction Large Arrow Sign*/Two-Direction Large Arrow Sign*
Dangerous Sharp Turning to L, R
Dangerous Bend Winding to L, R
Truck Rollover*

2B3 Roadway Conditions Signs

a) Introductory Note & Overall Terms

Roadway Conditions
Roadway & Environment*
Roadway Surface Conditions
Roadway Surface Physical Conditions
Special Roadway Features

b) Specific Terms

Added Lane*

Bike Hill
Hill/Hill_In_
Hill Blocks View Sign*
Dangerous Hill
Dangerous Descent
Dangerous Ascent
Dangerous Steep Descent to R, L
Steep Ascent
Bump/Dip
Cross Drain or Dip
Dead End/Dead End Plaque/No Outlet/No Outlet Plaque*/ Divided Highway Ahead/Divided Highway/Divided Highway Ends/ Divided Highway (Road) Ends Sign*
Rough Road
Speed Hump Sign*
Uneven Road
Gutter
Clearance
% Grade_Miles
Next_Miles
_Miles
Bikeway Narrows
Bicycle Surface Condition Warning Sign*
Carriageway Narrows
Lane Reduction Transition
Limited Width Sign
Narrow Clearance
Narrow Road
Narrow Structure
Road Narrows
Draw Bridge/Hump Bridge/Narrow Bridge
Bridge Ices Before Road*
One Lane Bridge
Opening Bridge
Overhead Bridge

One-Direction Large Arrow*
Two-Direction Large Arrow*
Supplemental Arrow Plaques*
Supplemental Plaques*
Pavement Drop-Off
Pavement Ends
Pavement Narrows
Pavement-Width Transition
Dangerous Shoulder
Loose Gravel
Low Shoulder*
Shoulder*
Shoulder Drop-Off Sign*
Soft Shoulder
Low Clearance
Lane Ends Sign*
Lane End Merges L, R
Lane Reduction Sign*
Lane Reduction Transition Sign
L, R Lane Ends
Uneven Lanes*
Roads Leads Onto Quay or River Bank Sign
Runway Truck Ramp/Runaway Truck Ramp__Miles
Truck Escape Ramp Sign*
Sand/Gravel/Paved Supplemental Plates

2B4 Intersection Signs

a) Introductory Note & General Terms

b) Specific Signs

Cross Road/Cross-Road/Crossroad
Cross Street
Cross Traffic Does Not Stop Plaque*
Crossing Sign*
Dangerous Fork
Dangerous T-Junction
Delta

Dangerous Fork
Dangerous T-Junction
Delta
Interaction of Vehicles with Other Moving Objects*
Intersection Warning Sign*
Oncoming Extended Green*
Oncoming Traffic Has Extended Green*/Oncoming Traffic May Have Extended Green
Road in Which Another Road Ends at a Junction
Road Intersection
Road Junction/Road Junctions
Side Road
Successive Tees
T Sign/T Intersection/T-Symbol Sign*/T-Intersection Sign*
Traffic Circle/Roundabout
Y Sign/Y Intersection/Y-Symbol Sign*/Y-Intersection Symbol Sign*
Merge/Merging Traffic Sign
Signal Ahead/Signals Ahead
Stop Sign Ahead/Stop Ahead
Warning Signs at Approaches to Intersections*
Yield Ahead
Double Arrow

2B5 Intermittent Moving Hazards Signs

Advance Crossing
Beware of Animals
Bicycle Crossing/Bicycle Crossing Warning/Cycling Entering or Crossing
Bicycle Surface Condition Warning*
Cattle or Other Animal Crossing
Cattle Crossing
Children
Congestion
Cross Walks
Deer Crossing
Fallen Rock/Falling Rock or Landslides

Farm Machinery
Golf Cart Sign*
Hazardous Conditions
High Water
Horse-Drawn Vehicles*
Moose Crossing
Pedestrian Crossing Ahead/Pedestrian Crossing/
Pedestrian Crosswalk
Playground Ahead/Playground
Range Cattle
School/School Ahead/School Crossing/School Zone/
School Crosswalk
School Crosswalk Warning Signs*
School Bus Stop Ahead
School Speed Limits
School Advance Warning Sign*
School Warning Sign*
Slippery When Wet/Slippery Road
Slippery When Wet-Bicycle Path
Snowmobile*
Truck Crossing/Truck Entrance, R, L
Crossing No Gates/Gates or Level Crossing Barrier/
Level Crossing with Barrier/Level Crossing Unguarded/Level Crossing/Guarded Level-Crossing/Level Crossing Guarded by Gates/Level Crossing Warning Cross/Level Crossing Stop Sign/ Unguarded Level Crossing/Unguarded Level-Crossing/ Level-Crossing with Gates/Level-Crossing Without Gates/ Railway Cross-Buck/Unprotected Railroad-Crossing/ Protected Railroad Crossing
Railroad Level/Grade Crossing*
Level/Grade Signs*
Level/Grade Crossing Sign*
Level (Railway) Crossing Sign*
Low Ground Clearance Highway-Rail Grade Crossing*
No Train Horn Sign*

No Signal Sign*
Railway Advance Warning Sign*
Railroad Crossing Signs*
Storage Space Sign*
Train May Exceed__(km/h or miles)
XX Feet/Meters Signs [4]
XX Feet/Meters Between Track & Highway Sign*
XX Feet/Meters Between Highway & Tracks Behind You

2B6 Construction & Maintenance Signs
Road Repairs Ahead Signs
Road Work/Road Works Signs
Road Work Ahead Signs
Road Construction ... Feet/Detour Ahead/Road Street Closed ... Feet/
One Lane Road ... Feet/Men Working/Fresh Oil/Road Machinery Ahead/Shoulder Work Ahead/Survey Crew Ahead/Flagman ... Feet/Flagger/Left [Right] Lane Closed Ahead/Single Lane .../ Blasting Zone_Feet/End Blasting Zone/Turn Off Two-Way Radio/ Pilot Car Follow Me/End Construction/Road Diversion/Detour/ Flagman/Survey Crew/Truck Entrance Signs
Advance Flagger Sign*
Worker Sign*/Workers Sign
Advance Road Construction Sign*
Advance Detour Sign*
Advance Road Closed Sign*
Advance One Lane Ahead Sign*
Advance Lane Closed Sign*
Advance Warning Sign*
Construction Approach Warning Signs*
Signs for Blasting Areas Sign*
Temporary Traffic Control Devices*/Temporary Traffic Control Zone Devices*
Worker Sign*/Workers Sign

2B7 Other Hazards Signs
a) General or Alternate Danger Signs
Other Dangers

General Danger Sign
Alternative Sign
Dangers Other Than Those Indicated by Signs 1-6 Bis

b) Specific Signs
Additional Panels
Advance Traffic Control Sign*
Advisory Exit Speed
Airfield/Airplane
Be Prepared to Stop Sign*
Bridle Path
Cross-Wind
Crossing Sign*
Emergency Signal Ahead Sign*
Emergency Vehicle Sign*
Exit
Exit Speed Sign*
Factory Entrance
Hazardous Conditions
Motorized Traffic Sign*
No Passing Zone
No Traffic Sign*
Notice Boards
Low Shoulder
Peligro
Ramp Speed Sign*
Road Diversion
Road Leads Onto Quay or River Bank*
Rough Road
Rules of Road
Snowflakes
Speed Reduction Sign*
Temporary Two-Way Ahead
Trucks Use Lower Gear/Use Lower Gear/Use Second Gear/Use Low Gear*
Two-Way Traffic Sign*

Uneven Track

c) Supplemental Plates/Plaques
Advance Street Name Plaque*
Advisory Speed Plate/Advisory Speed Plaque*
Diagonal Arrow Plaque*
Diagonal Lanes Plaque*
Distance Ahead Plaque*
Distance Plaque*
High-Occupancy Vehicle Plaque*
Hill-Related Plaque*
Next Distance Plaque*
Photo Enforced Plaque*
Share the Road Plaque*
Traffic Circle Plaque*

Notes

Warning Signs for the classifications in Part E and Part H are influenced by UN 1968. Those classifications leaned toward official formulations and, hence, UN forms are listed but a wide variety of US forms are not so listed. This is less the case with Traffic Signals and Traffic Markings where US forms are more substantial than those of UN 1968. Categories for Database and Part E and Part H bear substantial resemblance. The 2nd ed. of Part B (1992) contains a variety of classifications including one of messages that provides a comprehensive of US sign forms.

US MUTCD editions have increasingly added coverage of special categories of TCD forms. The general coverage must thereby be augmented by bicycle, school, construction and maintenance sections. Temporary Traffic Control replaces an older term, Construction & Maintenance [MUTCD 1961 has "Traffic Controls for Highway Construction & Maintenance Operations". MUTCD 1971 and 1978 add "Street and ..."]. MUTCD 1988 had expanded the older term to Traffic Control for Streets & Highways Construction & Maintenance, Utility & Emergency Operations. MUTCD 2000 and 2003 have both expanded and simplified the overarching term. There are obvious overlaps between general and

specialized sections. However, some new terms are often present in the specialized segments.

The older term of Plate has been superseded by Plaque. The meaning is unchanged. MUTCD 1978 and 1988 employed both terms. Plaques/Plates have grown in types and numbers in recent years. As a result MUTCD 2000 and 2003 have added a plaque segment to their schema of warning signs (Roadway Related/Traffic Related/Supplemental Plaques). Plaques have therefore been given a separate segment in this classification.

A new segment known as Supplemental Warning Devices has been added to this coverage. It is not in the Database. The terms have not been added to the index/classification. Some terms are more in the form of descriptive statements and require the context of Supplemental Warning Devices for coherence. Some of the Devices are partially lighted and require alternative treatment. The materials are in a draft form and require additional work.

New Terms:

MUTCD 2000/2003

Added Lane Sign
Advance Arrow Plaque
Advance Arrow 2003
Advance Street Name Plaque
Advance Traffic Control Signs [category]
Advisory Speed Plaque
Be Prepared to Stop Sign 2003
Bicycle Surface Condition Warning Sign
Bridge Ices Before Road Sign 2003
Combined Horizontal Alignment/Advanced Speed Sign
Combinded Horizontal Alignment/Intersection Sign
Cross Traffic Does Not Stop Plaque 2003
Curve Speed Sign

Dead End Plaque [1988 edition employs both plate and plaque terms]
Diagonal Arrow Plaque 2003
Diagonal Lanes Plaque 2003
Distance Ahead Plaque 2000
Distance Plaques 2000
Emergency Signal Ahead Sign
Emergency Vehicle Sign
Golf Cart Sign 2003
High-Occupancy Vehicle Plaque 2003
Hill Blocks View Sign 2003
Hill-Related Plaques
Horse-Drawn Vehicle Signs 2003
Intersection Warning Sign [category sign]
Lane Reduction Signs 2000
Lane End Signs 2003
Low Ground Clearance Highway-Rail Grade Crossings
Low Shoulder Sign
Motorized Traffic Sign 2000 [category and individual sign]
Next Distance Plaque
No Outlet Plaque 2000
No Traffic Sign
No Signal Sign
No Train Horn Sign
Oncoming Extended Green Sign 2003
Oncoming Traffic Has Extended Green/Oncoming Traffic May Have Extended Green 2003
One-Direction Large Arrow Sign
Photo Enforced Plaque 2003
Ramp Speed Sign
School Crossing Warning Assembly 2003
School Warning Sign 2000
Share the Road Plaque
Shoulder Sign [category]
Shoulder Drop-Off Sign
Signs for Blasting Areas, 1998

Snowmobile Sign 2003
Speed Hump Sign
Speed Reduction Sign 2003
Storage Space Sign
Supplemental Arrow Plaques
Supplemental Plaques
Temporary Traffic Control Devices/Temporary Traffic Control Zone Devices
Temporary Traffic Control Devices Signs 2003
T-Intersection Sign 2003
Traffic Circle Plaque 2003
Train May Exceed_(km/h or miles)
Truck Escape Ramp Sign
Truck Rollover Sign 2003
Trucks Use Lower Gear
Two-Direction Large Arrow Sign
270 Degree Curve Sign 2003
Uneven Lanes Sign
Use Low Gear 2003
Workers Sign
XX Feet/meters
XX Feet or Between Track & Highway
XX Feet or Marker Between Highway & Tracks Behind You
Y-Intersection Sign 2003

1988 and older editions of MUTCD

These editions list terms that are not in the Database.

Construction Approach Warning Sign.
Crossing Sign [category]
Divided Highway (Road) Sign
Exit Speed Sign
No Outlet Plaque
T-Symbol Sign
Two-Way Traffic Sign

Worker Sign and Workers Sign. Newer editions include only the latter. Database has only the singular form.
Y-Symbol Sign

Signs for Blasting Area. This overarching term does not appear in newer editions. The term is not in the Database.

Newer editions include the term Advance Warning Signs but the word "Advance" does not appear with the specific sign term. 1971 includes Construction Approach Warning Signs as well as adding Advance to the specific term.

Advance Road Construction Sign
Advance Detour Sign
Advance Road Closed Sign
Advance One Lane Ahead Sign
Advance Lane Closed Sign
Advance Flagger Sign

Jones & Hawkins 1997

Roadway-Related Hazards Signs
Traffic-Related Hazards Signs
Non-Vehicular-Related Hazards Signs

The word "Sign" is listed within the category but not attached to the actual term as is done here. MUTCD 2000 and 2003 include the terms Roadway Related and Traffic Related within their respective schemas but those terms are less complete than those of Jones & Hawkins.

Part E, 1st edition, 1984

Interaction of Vehicles with Other Moving Objects

Roadway & Environment Signs
Warning Signs at Approach to Intersections
Part Iiii, 2000

Railroad Crossing Signs

Differences Between Database Index & Text

Bend Forms: Together in text; separated in index
Bend, L, R: Not in text; source unknown; retained in Index until determined.
Turns, L, R & Single Turn, L, R: Together in text; separated in Index. Single not followed by Turn in Text.
Sharp Turn/Bend: Source of this configuration unknown; retained in Index until clarified.
Right Winding Road/Left Winding Road: Text only; now added to Index.
Winding Road/Winding Road to L, R: Second form not in text; retained in Index until term clarified.
Roadway Conditions: Category in text but not an individual term. However, it is discussed in introductory remarks.
Roadway Surface Conditions/Roadway Surface Physical Conditions: Together in Text but separately listed in Index.
Hill, Descent, Ascent: Together in Text but separation may be in order because of differences in terms.
Railway Grade Crossings: Very complex. Some simplification in Index. New terms may remain in separate listings.
Some terms in Index physically separate yet together in Text. Now together or at at least adjoin one another.
Bridge terms: Together in Text.
Narrow Bridge/Road Narrows: This formulation not in Text; delete entirely.
Narrow Clearance: Clearance: Configuration not in Text; delete from Index
Narrow Structure & Bridge: Together in Text; adjust Index to that form.
Arrows & Checkerboard: Together in Text; add to index if source supports that form.

Low Clearance: Clearance: Delete from Index unless source confirms this form; not in Text.
Road Leads onto Quay...: In Text; add to Index.
Lane End Signs: Correlate Text and Index; compare to changes in 2000, 2003.
T-Symbol and Y-Symbol Signs: Older term but missing from Database. Add.
Signal Ahead/Signals Ahead: Split in Text; Source review necessary.

Intermittent Moving Hazards: The Database Index added probable moving hazards from schools, and railway crossings special categories under intermittent moving hazards. While the text added many of those hazard signs to Other Hazards. That category partly reflects UN practice which has many signs in Other Hazards [Note: UN 1968 employs term Other Dangers rather than Other Hazards as was done in the Database]. A reworking of signs may thereby be needed. In addition, two pages mislocated in Database and many signs were mistakenly assigned to Miscellaneous Forms. This is now corrected.

Construction & Maintenance Signs: Complex and differences between Index and Text. Some reordering and simplification have been carried out.
Miscellaneous Signs: Some Regulatory Signs were inadvertently added to Index; they are now deleted.
Miscellaneous Signs: C & M Signs listed in Index under that heading but not in Text. Signs now moved to correct category.

Other Hazards: Miscellaneous: The Database Index includes a variety of signs that are regulatory and were inadvertently included in the Index. These signs are not listed in the text: These signs include
Cross Only at X-Walks
Cross on Green Light Only
Do Not Block Intersections
Keep Off Median
Left on Arrow Only
Left Turn Signal
Stop Here on Red

Differences Between Parts E & H and Database:

Part E (2004) views the Railroad Level/Grade Crossing as a separate section while the Database places that material within the Intermittent Moving Hazards segment. Part H (2003) follows the practice of Part E. The classifications are influenced by the UN including the practice of a separate Crossing section.

Part E includes an Other Dangers segment while the Database employs an alternative term: Other Hazards. Part H employs Other Dangers.

Road Alignment/Roadway Condition/Intersection/Intermittent Moving Hazards/ Construction & Maintenance are found in both Parts and in the Database. As previously noted, US MUTCD has changed Construction and Maintenance to Temporary Traffic Controls. Construction & Maintenance are the core words for that category but not the full title. See previous paragraph on terminology changes in MUTCD.

Part E (1984) categories are at variance with new categories in several respects: Roadway Alignment and Roadway Conditions Signs are listed under Roadway & Enviroment Signs, a single category. Intermittent Moving Hazards Signs were placed under Interaction of Vehicles with Other Moving Objects Signs. Construction & Maintenace Signs were designated Temporary Warning Signs for C & M. Intersection Signs were termed Warning Signs at Approaches to Intersections. Level/Grade Signs were known as Railroad Crossing Signs. Other Dangers were divided in Other Dangers I & II.

Part H (1994) is somewhat similar to Part E (1984) though there are differences. Roadwork Signs is employed in lieu of C & M. Level (Railway) Crossing Signs replaced Level/Grade Crossing Signs. The former is indicative of UN and Eastern Hemisphere practice.

Supplemental Warning Devices:

Bowman 1995 has prepared an article on "Supplemental Warning Devices" based on work of Transportation Research Board/National Cooperative Highway Research Program. The TRB/NCHRP work is a synthesis of these devices employed by various agencies. Many of these devices involve flashing lights and signs. They are therefore not entirely an unlighted aid. The following outline summarizes these devices and conditions they are addressing:

Environmental Conditions Category*
- Passive Warning Signs: Slippery Roadway Conditions
  - Watch for Ice on Bridge/Ice Forms on Bridge Before Pavement/Watch for Ice
- Active Warning Signs: Slippery Roadway Conditions
  - Bridge Icy Ahead (Activated device not described)
  - Ice on Bridge (supplemental plaque: When Flashing); Flashing Lights added.
  - Graphic Representation of Swerving Car (supplemental plaque: Max Speed 35 MPH); Flashing Lights added.
- Limited Visibility Caused by Fog or Smoke
  - Fog Area Sign with Flashing Light.
  - Smoke Sign with Flashing Light.
  - Variable Message Sign. Red neon tubing employed for words and numbers. Flashing Lights added to neon tubing.
- High Wind Warning Signs
  - Trailers - Campers Gusty Wind Area Next_Miles
  - Strong Wind Possible Sign with Wind Sock
  - Heavy Cross Wind Sign with Wind Sock.

*Terms for conditions and devices are from Bowman.

Heavy Vehicles Category
- Trucks That Hit This Will Hit Bridge Sign with Device equiped with tubing that will hit truck. Prior Passive Warning Sign: Load Height Gauge Ahead sign.
- Vehicle Too High/Stop Sign with Sensing Device.

Geometric Features Category
- Flashing Beacon on railing activated by loop detectors for excessive speeds
- Traffic Coming From Left (Right) When Flashing with Flashing red Beacons.

Supplemental Plate: If Lights Out Sign/No Power/Signal Not Working with fixed white lights.
Be Prepared to Stop with supplemental plate: New Signal or New Stop Sign.
Accompanied by Red Flags or Battery-powered Flashing Lights.
Alternative Supplemental Plate: New Signal (Stop Sign) Ahead.
Established Alternative: Signal Ahead Sign with Flags, Flashing Lights.
Special Crossing Zones
Yield to Pedestrian Signs with Flashing Beacons
Duck Crossing Ahead Sign.
Grazomg Area with Suplemental Plate: Liability For Damage Limited by Law.
Rail-Highway Crossings
Graphic Symbol Sign of Truck Hung-up on Crossing: Roadway-Tracks at different elevations. [Non-standard: symbol not in MUTCD].
Graphic Symbol of Trolley car with supplemental plate" Trolley Crossing.
RR Crossing Sign with Supplemental Plate: Watch for Trains with Flashing Red Beacons.
Pavement Conditions Category
Steel Deck Sign. Non-standard Symbol.
Undulations Ahead Sign. Non-standard Symbol: rumble strips.
Rumble Strip Sign. Standard message.
Congestion & Stopped Vehicles Category
Caution Slow Traffic When Flashing with Flashing Red Beacons
Watch for Stopped Traffic When Flashing with Flashing Red Beacons
Ramp Back Prepare to Stop Sign

2C Informative Signs
2C1 Categories & Overarching Terms
a) Categories
Overarching & Sub-Overarching Terms
Destination & Distance
Route Markers
Signs Giving General Information
b) Overarching Terms
General Note
Advance Direction & Direction Signs
Destination & Distance Signs
Directive Signs
Guide Signs
Indication Signs
Information Signs
Informational Signs
Informative Signs
Place & Route Information Signs
Road Identification Signs
Route Markers/Route Marker Signs
Signs Giving Indications Only
Signs General Information
2C2 Destination & Distance Signs
Advance Direction Signs
Advance Signs/Advance Guide/1-Mile/2-Mile Signs
Approach Direction Signs
City Names Signs
Color-Code Destination Signs*
Community Interchange Signs
Confirmatory Signs
Descriptive Signs
Destination Signs
Destination & Direction Signs
Diagrammatic Signs

Direction Signs
Direction Indicator Signs
Directive Signs
Distance/Confirmation-Distance Signs
Exit Direction Signs
Exit Name Panel
Expressway Directional Signs
Expressway Interchange Signs
Fingerboard Signs
Fingerposts/Direction Posts/Guide Posts/Signposts
Gore Signs
Interchange Sequence Signs
Intersection Signs*/At-Grade Intersection Sign*
Mileage Signs
Next Exit
Next Exit Supplemental
Next (X) Area Signs*/Next X Exit Signs*
Place/Place Names/Place Identification Sign
Preferential Only Lane Sign*
Pull Thru Sign
Street Name Sign/Street Names Plates
Supplemental Advance Guide Signs

2C3 Route Markers

a) Introductory Notes & Overarching Terms
Road Identification signs
Route Markers
Route-Indicators

b) Specialized Route Markers
Auxiliary Markers
Bicycle Route Markers
Business Route Marker/Business Auxiliary Sign*
Combination Junction Sign
Confirming or Reassurance Assemblies*
Confirming Route Markers
County Route Markers/County Route Sign*

Forest Route Markers
Interamerican Highway Route Markers
Interstate Route Marker/Interstate Route Signs*
Markers for Alternate Routes*
Off-Interstate Business Loop Marker/Off-Interstate Business Spur
Off-Interstate Business Sign*
Pan-American Road Route Marker
Provincial Route Markers
Reassurance Route Marker
Road Marker
State Route Marker/State Route Sign*
Trailblazers
Trans-Canada Route Marker
Trunk Route Marker/Truck Auxiliary Sign*
US Route Marker/US Route Sign*

c) Route-Marker Tabs
General Note
Advance Turn Arrows Tab/Advance Turn Arrow Auxiliary Sign
By-Pass Tabs/By-Pass Auxiliary Signs*
Cardinal Direction Tabs/Cardinal Direction Auxiliary Signs
North, East, South, West
Directional Arrow Tabs/Junction Auxiliary Sign*
Ends/End Auxiliary Sign*
Junction Tab Signs/Junction Auxiliary Sign*
To Auxiliary Signs*
Alternate Tabs
Temporary Marker Tabs
Alternate Tabs
By-Pass Tabs
Relief Tabs
Business Tabs
Detour Tabs
Detour Signs
Markers for Alternate Routes/Auxiliary Signs for Alternate Routes*
Alternate Marker/Alternate Auxiliary Marker

By-Pass Route Marker/By-Pass Auxiliary Sign*
Route Marker Assembly/Route Sign Assemby

2C4 Mileposts
General Note
Direction Stones
Kilometre Stones
Landmarks/Guide
Marks/Markers
Mark Stones
Milliaries*
Mileposts/Mile Posts*/Mile Markers [2 forms]
Milestones
Road Markers
Stone Markers
Reference Location Signs*/Intermediate Reference Location Signs*

2C5 Signs Giving General Information
Introductory Note
a) Overarching & Sub-Overarching Terms
Civil Defense Signs*
Directions, Position, or Indication Signs
Emergency Management Signs*
Signs of General Interest/General Interest Signs
Other Signs Providing Useful Information for Drivers of Vehicles/ Signs Giving Notice of Facilities Which May Be Useful to Road Users
General Information Signs
General Information & Auxiliary Signs
General Motorist Signs
General Services Signs
Indicative Signs
Indication Signs/Signs Giving Indications Only
Information Signs
Information, Facilities or Service Signs
Off-Road Facilities Signs
Recreation & Accomodations

Essential Services
Food & Fuel
Routing to Specific Destination
Miscellaneous Information
Parking Area Signs
Recreation & Cultural Signs
Accomodation Services R & C
General Information R & C
Motorist Services R & C
Land R & C
Water R & C
Winter R & C
Recreation Areas Signs
Recreational & Cultural Interest Area
Rest & Information Area
Rest & Scenic Area
Rest & Information Area
Rest Area Signs
Service Signs
Tourist Information & Welcome Center Signs
Tourist-Orientated Directional Signs (TODS)*

b) Services Signs
Accessibility for the Handicapped Sign*
Accomodations/Hotel/Motel/Lodging
Airport
Ambulance Station Sign*
Breakdown Service/Mechanical Help/Mechanical Services/ Service Station
Carpool Information Sign*
Channel 9 Monitored Sign*
Emergency Dial XX Sign*
Emergency Medical Services Sign*
Emergency Medical Care Sign*
Ferry Boat
First Aid/First-Aid/First Aid Station

Filling Station/Fuel/Gas/Gas Station/Fuel (Diesel)
Food/Restaurant/Refreshment or Cafeteria
Hospital
Litter Container Sign*
National Scenic Byways Sign*
Next Services ... Miles
Pharmacy Sign*
Phone/Telephone
Radio Information Signs*
Radio-Weather Signs
Radio-Traffic Information Signs
Recreational Vehicle Sanitary Sign*
Recycling Collection Sign*
Travel Information Call XX Sign*
Trail Marker/Trail Sign*

c) Parking Signs
Authorized Parking Place/Authorized Parking-Place
Park & Ride
Park & Ride Next Right
Parking
Parking Area
Parking Allowed
Parking w/o Lights

d) Recreation Signs
Boat Launch Ramp
Camping
Camping or Caravan Site
Caravan Site
Information Center
Picnic Site/Picnic Table/Picnic Tables ... Miles
Rest Area
Roadside Parking Area ... Miles/Roadside Rest ... Feet
Scenic Area
Scenic Overlook
Tent Camp

Tourist Information Center Sign*
Trailer Camp
Travel Information
Trolley Park
Viewpoint
Welcome Center Sign*
Youth Hostel
Additional R & C Signs:
Winter Recreation Area/Marina/Viewing Area/Rest Rooms/Food Service/Post Office/Mechanic/Ferry/Swimming/Canoeing/ Motor Boating/Boat Launching Ramp/Sail Boating/Ice Skating/ Water Skiing/Snow Skiing/Fishing/Ranger Station/Amphitheater/ No Smoking/Picnic Area/Camp Fire

e) Miscellaneous Signs
Access for Handicapped
Advance Signs-Exit Motorway
Advised Itinerary for Heavy Vehicles
Advisory Speed
All Trucks Commercial Vehicles Next Right
Beginning of Built Up Area/End of ...
Bicycle Route
Bus Stop
Bus Stop/Tramway Stop
County
Crossover Sign/Advanced Crossover Sign
Cul-de-Sac
Do Not Throw Litter
Emergency & Authorized Vehicles Only
End of Road for Motor Vehicles
Escape Lane
Exit Direction
General Speed Limit
Gore
Information Signs
Keep Off Wet Paint

Motorway/End of Motorway
No Dumping Allowed
No Fishing From Bridge
No Through Road
Pedestrian Activated Signals Signs
Pedestrian Overpass/Pedestrian Underpass
Police
Protected Pedestrian Walk
Radio Information Sign*
    Radio-Weather Signs
    Radio-Traffic Information Signs
River & Lake
Road for Motor Vehicles
Sanitary Facility
Second Stage
Signs Indicating Closure of a Traffic Lanes
Signs Indicating Number & Direction of Traffic Lanes
Traffic Signals Speed Sign
Tram Stop No_
Turn Marker
Weigh Station Signs
    Advance Symbol
    All Trucks Commercial Vehicles Next Right
    Exit Direction
    Gore Sign
Civil Defense Signs/Emergency Management Signs*
    Evacuation Route
    Area Closed
    Traffic Regulation Post
    Maintain Top Safe Speed
    Road Use Permit Required for Thru Traffic
Emergency Aid Centers
    Decontamination Center
    Registration Center
    Welfare Center

Medical Center
Shelter Directional Signs*
Fallout Shelter__Miles

Notes

New Terms:

2000/2003

Note: The long-enduring term Route Marker has been eliminated by US FHA. The 1988 edition included the term but the 2000 and 2003 editions have replaced the term primarily with the term Auxiliary Signs. The reasoning for this change is not known. Many terms have been altered as a result of the change. These altered terms are presented in a batch format. Route Markers is retained as an overarching term for the study.

Route Signs & Auxiliary Signs/Route Sign Auxiliary/Junction Auxiliary Sign/Cardinal Direction Auxiliary Sign/Auxiliary Signs for Alternate Routes/Alternate Auxiliary Signs/By-Pass Auxiliary Sign/Business Auxiliary Signs/Truck Auxiliary Sign/To Auxiliary Sign/End Auxiliary Sign/Interstate Auxiliary Sign/Temporary Auxiliary Sign/ Detour & Auxiliary Sign/Advance Turn Arrow Auxiliary Sign/Directional Auxiliary Sign/Route Sign Assemblies/Advance Turn Arrow Auxiliary Signs/ Directional Arrows Auxiliary Sign/Trailblazer Assembly/Trail Signs

County Route Signs/Intersection Signs/State Route Signs/US Route Sign/Off-Interstate Business Route Sign

An even longer enduring term, Mileposts, has also been replaced by MUTCD. The new term is Reference Location Sign. 2003 also adds Intermediate Reference Location Signs while MUTCD 2000 emplyed Reference Posts for Freeways and Expressways. MUTCD 2003 employs not only Reference Location Signs but also Enhanced Reference Location Signs.

Other Changes Between 1988 and 2000/2003 (older MUTCD editions serve as background sources for this coverage):

Accessibility for the Handicapped Sign
Advance Turn Arrow Auxiliary Signs instead of Advance Turn Arrow
At-Grade Intersection Sign instead of Intersection Signs
By-Pass in By-Pass Auxiliary Sign instead of Bypass in former Bypass Marker
Color-Code Destination Signs
Civil Defense Signs, 1988
Detour Marker and Detour Sign replaced by Temporary Detour & Auxiliary Sign
Directional Arrow Auxiliary Signs instead of Directional Assembly
Emergency Management Signs
General Service Signs
Next X Exit Area Signs instead of Next (X) Exit Signs, 1988
Preferential Only Lane Sign, 2003 only
Specific Services Signs instead of Motorist Service Signing (Specific Services was employed within segment)
To Auxiliary Sign
Tourist Information Center Sign, 1978
Tourist-Orientated Directional Signs displays hyphen in 2000/2003 but not in 1988
Intersection Approach Signs
Interstate Route Signs
Off-Interstate Business Route Sign
Advance Signs for TODS
General Directional Guide Sign for Conventional Roads
Destination Guide Signs
Ambulance Station Sign
Carpool Information Sign
Channel 9 Monitored Sign
Emergency Dial XXX Sign
Emergency Medical Services Sign
Emergency Medical Care Sign
Litter Container Sign

National Scenic Byways Sign
Pharmacy Sign
Radio Information Signs
  Radio-Weather Signs
  Radio-Traffic Information Signs
Recycling Collection Center Sign
Recreational Vehicle Sanitary Sign
Trail Sign
Travel Information Call 511 Sign
Weigh Station Signing instead of Weight Station Signing
Welcome Center Sign, 1978
Reference Posts

Other Changes Between MUTCD & Database:

Auxiliary Signs For Alternate Routes, 2000
Confirming or Reassurance Assemblies; 1988 and 2000/2003. Now added to text.
Intersections Signs, 1988; now At-Grade Intersection Sign

Civil Defense/Emergency Management Signs have been moved from Regulatory Signs. They had been included with Regulatory Signs in the Database.

Tabs from Canadian replaced Marker in the Database. It may be less confusing to employ Marker as well as Tab. The value of Marker may not be fullly eliminated even in light of MUTCD changes.

Blanchard 1919

Mile Posts

Noble 1946

Milliaries

UK MOT

Buttons
Cats-Eyes

Differences Between Index & Text in Database

Informational Signs: in Text; added to Index
"SOGI": Signs of General Information should be Signs Giving General Information (SGGI).
Destination & Direction Signs: Distance rather than Direction in Text; Index changed to that term.
Street Name in Text; name added to Index; street spelling also corrected.
Combination Junction Markers: Text has sign; added to Index.
Reassurance Markers: not in Text though Reassurance Route Markers in Text and in Index. Basic term dropped from Index.
Confirming Route Marker: in Text; added to Index.
Interstate Route Marker: in Text; added to Index.
Route-Identification Signs: not in Text; source unknown.
Note for Route-Marker Tabs: lacks title. General needs to be added to both Text and Index.
Directional Arrows: in Text; add to Index.
General Note in Mileposts: in Text; add to Index.
Mile Posts listed twice in Text: along and with Mile Markers.
Miscellaneous Signs & Service Signs: both require reconfiguration in Text and in Index.
Gas Station/Fuel Diesel: needs to be joined by Filling Station/Fuel/Gas in Index.
Trailer Camp: in text; add to Index.
Road for Motor Vehicle/End of Road Vehicles: in Text; add to Index.
Emergency & Authorized Vehicles Only; in Text; add to Index.
Weigh Stations: add four terms to Index.
Tourist Orientated Directional Signs in Text and alphabetical Index but not

Categories Index; it is now added.
Recreational & Cultural Interest Area Signs in Text and alphabetical Index but not Categories Index; it is now added.
A variety of signs in Miscellaneous are together but listed separately in Index.

Differences between Parts E & H, and Database:

Differences in this category are extensive. Parts E and H contain only main classification entries for Informative Signs. That brief coverage creates few points of commonality between Database and the classifications. Two of the four classification categories contain significant errors: Destination and Direction Signs are replaced by an eroneous Distance and Direction Signs. Both Database and classification include "SOGI" signs: Signs of General Information instead of "SGGI" Signs: Signs Giving General Information. The error was noted in Part E, 2nd ed yet the flawed term was not eradicated.

The classification requires a variant entry. It is possible that the more abundant terms of Part E, lst ed, and Part H, 2nd ed can be the basis of such an entry. Those terms included Advance Direction Signs, Direction Signs, Road Identification Signs, Place Identification Signs, Confirmatory Signs. Two final terms are both awkward in phrasing yet vital: Signs for "Facilities which may be useful for road users" and Signs for "Facilities which may be useful for road users. The older classifications employed UN categories and created a separate Standing and Parking Signs group. Signs Giving General Information in the Database (though under the inaccurate heading) is divided into Services, Parking, Recreation and Miscellaneous segments. The first three could be employed in some manner for a variant classification entry. Miscellaneous needs to be divided into coherent units as much as possible.

Differences between MUTCD editions and Database:

US MUTCD editions display increasing complexities in organization, categories and individual devices. This is especially true with those categories and signs within Signs Giving General Information. In order to improve the coverage

the existing Overarching category has been altered to Overarching and Sub-overarching terms. This altered category lists not only major groups of terms but more restricted sub-groups within the various MUTCD editions. The expanded listings present the category terms as they are given with no attempt at integrating terms into a single category. Coverage of individual sign coverage is also a difficulty: there is an uncertain line between Service signs and Miscellaneous signs. The coverage attempts to separate terms without undue arbitrariness. Significant changes in Route Markers are described below.

2D Regulatory Signs
2D1 Categories
- Priority Signs
- Prohibitory & Restrictive Signs
  - Prohibitory & Restrictive of Entry Signs
  - Prohibitory & Restrictive of Turns/U-Turns Signs
  - Prohibitory & Restrictive of Overtaking Signs
  - Speed Limit Signs
  - Miscellaneous, Single Forms & End of Prohibition or Restriction Signs
  - Mandatory Signs
  - Parking & Standing Signs

2D2 Priority Signs Terms
- Give Way/Yield Sign
- Yield Here to Pedestrians Signs*/Unsignalized Pedestrian Crosswalk Signs*/
- In-Street Pedestrian Crossing Signs*
- Stop Sign/Supplemental Plaque: 4-Way*/All-Way*
- Priority Road Sign/End of Priority Sign
- Stop, Children Crossing Sign
- Additional Panels
- Slow-Major Road Ahead Sign
- Halt at Major Road Ahead

2D3 Prohibitory & Restrictive Signs Terms
a) Prohibitory & Restrictive of Entry Signs
1) One-Way & Both Direction Signs
- No Entry Sign
- Do Not Enter Sign
- Direction Prohibited Sign
- Closed to All Vehicles in Both Directions/Closed to All Vehicles Signs
- Wrong Way Sign*

2) Categories of Exclusion Signs
- No Entry for any Power Driven Vehicle Except Two-Wheeled Motor Cycles Without Side Car Sign/

No Entry Motor Cycles/No Entry Cycles/No Entry Mopeds/
No Entry Goods Vehicles/No Entry Any Power Driven Vehicle Drawing a Trailer Other Than A Semi-Trailer or a Single Axle Trailer/No Entry for Pedestrians/No Entry for Animal-Drawn Vehicles/No Entry for Handcarts/No Entry for Power Driven Agricultural Vehicles/No Entry for Vehicles Carrying Dangerous Goods for Which Special Sign Plating is Prescribed
No Entry for Goods-Carrying Vehicles/No Entry for Motor Vehicles/No Entry for Bicycles
Motor Traffic Prohibited/Motor Lorries Prohibited/Motorcycling Prohibited/Cycling Prohibited/Riding [Horses] Prohibited
No Trucks/No Passenger Cars/No Animal-Drawn Carts/No Bicycles/No Farm Machinery/
No Motor Vehicles/No Trucks/Trucks Excluded/ Commercial Vehicles Excluded/Pedestrian Excluded/ Commercial Vehicles with Lugs Prohibited/Pedestrians, Bicycles, Motor Driven Cycles Prohibited/Pedestrians & Bicycles Prohibited/No Bicycles/Cycling Prohibited/ Bikes, Trucks, Motor Cycles Prohibited
Play Street: Prohibited All Vehicles__To__Unless Calling At Premises in the Street
Selective Exclusion Signs*

3) Vehicular Exclusion: Weight, Height, & Length Signs
No Entry for Vehicles Having An Over-All Width Exceeding ... Metres (...Feet) Sign/No Entry for Vehicles Having an Height Exeeding ... Metres (...Feet) Sign/No Entry for Vehicles Exceeding ... Tons Laden Weight Sign/ No Entry for Vehicles ... Tons on One Axle Sign/No Entry for Vehicles or Combination of Vehicles Exceeding ... Metres (... Feet) in Length Sign
Weight Limit Sign (LN 1931 & 1939) Maximum Width of Vehicles Signs/Weight Height of Vehicles (1939) Signs/ No Entry for Vehicles Having an Axle Weight Exceeding ... Tons (UN 1949)/Axle Weight Limit ... Tons/Maximum Load Per Axle Weight Limit ... Tons Signs/Axle Weight ... Tons

Sign/No Trucks Over ... Lbs Empty Weight Sign/Weight Limits ... Tons Per Axle ... Tons Gross Sign
Maximum Load Sign/Maximum Height Sign/Maximum Width Sign/Maximum Load Per Axle Sign

4) Miscellaneous & Single Category Signs
Driving of Vehicles Less Than ... Metres (... Yard) Apart Prohibited Sign

b) Prohibitory & Restrictive of Turns & U-Turns (About-Turns) Signs
No Left Turn/No Right Turn/Turning to the Left Prohibited/
Turning to the Right Prohibited/Turn Left (R)/No Turns/No Turn on Right/Right Turn on Red After Stop/No Right Turn on Red Traffic Signal/No U-Turn Signals/No About-Turns (U-Turns/No Turns
Turn Prohibition Signs*
Do Not Block Crossroads

c) Prohibitive & Restrictive of Overtaking (Passing) Signs
Overtaking Prohibited Sign/Overtaking By Goods Vehicle Prohibited Sign
Do Not Pass Sign
No Overtaking Sign
Stopping Prohibited Sign

d) Prohibitive & Restrictive Signs: Speed Limits
Maximum Speed Limited to he Figure Indicated Sign/Maximum Speed Zone Sign/Speed-Limit Sign/Speed Limit Sign/Speed Limit 30 MPH/30 MPH Speed Limit Signs/Truck Speed Limit Sign/Night Speed Limit Sign/Minimum Speed Limit Sign/Truck Maximum Sign/Speed Zone Ahead/Reduced Speed Ahead/Reduced __Speed MPH/Speed Limit___& Minimum Speed Limit Sign

e) Miscellaneous, Single Forms, & End of Prohibitive or Restrictive Signs
Additional Panels
Dangerous Goods Prohibited
Fines Higher Plaque*
Inspection
Passing Without Stopping Prohibited
Stop (Customs) Sign/Customs Sign/Stop Near Customs

Use of Audible Warning Devices/Prohibited Sign/
Horn Blowing Prohibited Sign/Silence Sign
End of all Local Prohibitions Imposed on Moving Vehicles Sign/
End of Prohibition of Overtaking Sign/End of Speed Limit Sign
Speed Limit De-Restriction Sign
End___Mile Speed Sign
Traffic Prohibition Sign*
Truck Inspection Station Sign/Commercial Vehicles Next Right/
Truck Inspection Station Advance Sign/Truck Inspection Station
Exit Signs

2D4 Mandatory Signs

Direction to be Followed Sign
Compulsory Circulation Sign (I)
Compuslory Circulation Sign (II)
Pass This Side Sign
Keep Your Right/Turn Left Only/Turn Right Only/Keep Straight
Ahead/Trucks to Right-Lane/Two Way Traffic Ahead/Pedestrians to
the Left Signs
Left (R) Turn Only Lane/Straight Through or Left (R) Turn Only
Lane/Right or Left Turn Lane Only/All Movements Permitted
Lane/Straight Through Lane Only Sign/Double Right (L) Turn
Only/Double Right (L) Turn Only/Straight Through & Double Left
(R) Turn Only/Two Way Left Turn Lane Only/Three Lane Turn
Movement Sign
Compulsory Roundabout Sign/Traffic Circle
Compulsory Cycle Track/Compulsory Foot-Path/Compulsory Track for
Riders on Horseback/Compulsory Minimum Speed/End of
Compulsory Minimum Speed/Snow Chain Compulsory Signs
Divided Highway Crossing Signs
Do Not Block Crossing Signs
Intersection Lane Control Signs*
Advanced Intersection Movement Lane Control Signs*
Reversible Lane Control Signs*
Lane-Use Control Signs
Mandatory Movement Lane Control Signs*

Mandatory Movement Signs/Options Movement Signs/
Mandatory Turn Signs/Double Turn Signs
Optional Movement Lane Control Signs*
Passing Lane Ahead Sign
Plaques: Bus Lane/Center Lane/HOV+2/Left Lane/Left 2 Lanes/Right
Lane/Taxi Lane*
Preferential Lane Sign
Preferential Only Lane Sign*/Preferential Only Lane for High
Occupancy Vehicle (HOV)*
Begin Right Turn Lane Yield to Bikes
Right (Left) Lane Must Turn Right (Left) Sign*
Signs Indicating a Regulation or Danger Warning Applying to One
Or More Traffic Lanes
Compulsory Minimum Speed Applying to Different Lanes
Compulsory Minimum Speed Applying to One Lane
Speed Applying to Different Lanes
Signs Indicating Lanes Reserved for Buses
Slower Traffic Keep Right Signs/Trucks Use Right Lane/ Truck
Lane___Feet Signs/Keep Right (L) Signs
Snowmobile Route Signs/Snowmobile Prohibition Sign
Truck Route Signs/All Trucks Commercial Vehicles Next Right Signs
Two Way Left Turn Only Sign/Center Lane-Left Turn Only Sign
Lane Use Restriction Sign
One Way Sign/One-Way Signs
Keep Left (R) Dual Carriageway/Turn Left (R) One Way Only Signs/
Two Way Left Turn Only/Center Lane-Left Turn Only
Yield Centre Lane to Opposing Traffic Sign
Tunnel Signs
Keep Left/Turn Left/Keep Left of Island Signs
Keep Right (Left) Sign*
Keep Right Except to Pass
Left Lane for Passing Only
Entry Only-One Way Street
One-Way Sign (II)
Signs for Uphill Traffic Lanes*

Slow Moving Traffic Lane Signs*
Slower Traffic Keep to Right/Slower Traffic Use Right Lane
Road Closed/Road Closed__Miles Ahead-Local Traffic Only/
Road-Closed/Road Closed to Thru Traffic
Slower Traffic Use Right Lane/Slower Traffic Keep to Right
Travelpath Restriction Sign

2D5 Standing & Parking Signs
Parking Prohibited/Parking Prohibited Zone Sign/Standing & Parking Prohibited Sign/Alternate Parking Sign/Limited Duration Parking/ Parking Zone/Parking Signs
Handicapped Parking Sign
Limited Direction Parking Zone Exit Sign
Restricted Stopping or Waiting Sign
Waiting on Alternate Sides Sign
Parking Sign
No Parking/Restricted Parking/No Parking & No Stopping
No Parking/No Waiting/Parking Signs/Prohibition of Parking
Waiting Prohibited/Stopping Prohibited Signs
Parking Prohibited Zone/Parking Prohibited at Certain Times Zone Sign/Parking Zone/End of Parking Prohibited Zone Sign/End of Parking Zone.
No Parking Sign/No Parking__to__/No Parking Except Sundays & Holidays Signs/No Stopping or Standing Sign/One Hour Parking Sign/No Parking Loading Zone/No Stopping/No Standing Anytime Sign/No Parking Bus Stop Sign
No Parking on Pavement Sign/No Stopping on Pavement Sign/No Parking Except on Shoulder Sign/No Parking Sign/Emergency Parking Sign*/Emergency Stopping Sign/Emergency Restriction Sign*/Emergency Parking Only Signs/No Stopping Except on Shoulder Sign
No Waiting This Side Today Sign/Waiting Limited to__In Any Hour Signs
No Parking Signs/Parking Signs
No Parking/Bike Lane Sign
Multiple Parking Control Sign

Parking, Standing & Stopping Signs*
Reserved Parking for Persons with Disabilities*
Parking Prohibition Signs in Rural Districts*
Rural Parking Control
Rural Parking Control Sign
Rural Stopping Control Sign
Stopping is Prohibited Sign
Urban Parking & Stopping Signs*
Urban No Stopping Signs
Stopping Control Sign
Rush Period Stopping Control Sign
Part Time Stopping Control Sign
Urban Parking Control
Parking Control Sign
Part-Time Sign
Parking Limit Sign

2D6 Pedestrian Crossing Signs
Cross Only at Cross Walks Signs
In-Street Pedestrian Crossing Signs*
No Pedestrian Crossing Signs
Pedestrian Crossing Signs
Pedestrian Crosswalk/Playground Crossing Sign/School Crossing Signs
Use Ped Signals Sign
Yield to Peds Sign
Use Cross Walk
Cross on Green Light Only Sign/Cross on Walk Signal Only Sign
Push Button for Green Light Sign/Push Button for Walk Signal Sign

2D7 Miscellaneous Regulatory Signs
Hazardous Cargo Signs*
Hazardous Material Signs*
No Hitchhiking Signs
Photo Enforce Signs*
Traffic Laws Photo Enforced Signs*

2D8 Specialized Regulatory Signs: Temporary Traffic Control/Railroad Crossing/Schools/Bicycles

Begin Right Turn Lane Sign
Bicycle Lane Sign*
Bicycle Regulatory Signs*
Do Not Stop on Track Signs*
Local Traffic Only Signs*
No Motor Vehicles Sign
No Parking Bicycle Lane Sign*/No Parking Bike Lane Sign
No Right (Left) Turn Across Tracks Sign*
Parking Limits Signs *
Pedestrian Crossing Signs
Road (Street) Closed Signs*/Road Closed Sign
Shared-Use Path Restriction Sign*
Sidewalk Closed Sign*
Speed Limit Signs
Stay in Lane Sign*
Stop Here on Red*
Tracks Out of Service Signs*
Weight Limit Signs (3)*

Notes

New Terms in MUTCD

Advance Intersection Movement Lane Control Sign, 2000, 2003
Bicycle Lane Sign, 2003
Bicycle Regulatory Signs, 2000
Center Lane-Left Turn Only, 2003
Cross Only at Cross Walks, 2003
Do Not Stop on Track Signs, 2003
Emergency Parking Sign, 1971
Emergency Restriction Sign, 2000, 2003
Fines Higher Plaque, 2003
Hazardous Cargo Sign, 1988
Hazardous Material Signs, 2003

In-Street Pedestrian Crossing Signs, 2000
Intersection Lane Control Signs, 2000
Keep Right Sign
Mandatory Movement Lane Control Signs, 2000
No Parking Bicycle Lane Sign, 2000
One Way Sign
Optional Movement Lane Control Sign, 2000
Parking Prohibition Signs in Rural Districts, 1971
Parking Signs in Rural Districts, 1961
Parking, Standing, & Stopping Signs, 2000
Photo Enhanced Signs, 2003
Plaques: Left Lane; HOV+2; Taxi Lane; Center Lane; Right Lane; Bus Lane; Left 2 Lanes, 2000, 2003
Preferential Only Lane Sign, 2003
Preferential Only Lane For High-Occupancy Vehicles (HOV) Signs, 2003
Reserved Parking for Persons with Disabilities, 2000, 2003
Reversible Lane Control Sign, 2000
Right (Left) Lane Must Turn Right (Left) Sign, 2003
Road (Street) Closed Sign, 2003
Selective Exclusion Signs
Shared-Use Path Restriction Sign, 2000
Signs for Uphill Traffic Lanes, 1988
Slow Moving Traffic Lanes, 2000
Stay in Lane Sign, 2003
Stop Here on Red Sign, 2003
Supplemental Plaques: 4-Way; All Way, 2000/ Supplementary Plates, 1971
To Oncoming Traffic, 2003
Tracks Out of Service, 2003
Traffic Laws Photo Enhanced Signs
Traffic Prohibition Signs
Uphill Traffic Lanes Signs, 1961
Unsignalized Pedestrian Crosswalk Signs, 2003
U-Turn Prohibition Sign, 1961
Urban Parking & Stopping signs, 1988
Wrong Way Signs, 1971

Yield Here to Pedestrian Signs, 2003

A major term for UN 1968 in Regulatory Signs is that of Prohibitory & Restrictive Signs. Parts E, H, Iii contain seriously malformed versions of that term. Frequently Prohibitive has replaced Prohibitory and on occasion a second form has been substituted: Prohibition. An effort has been made to conform to the correct form in this study. It should be noted that Prohibition may correctly refer to specific signs on occasion.

Several signs, categories of signs or alternative forms of signs have been omitted in the Database. These are are added in this study. When these forms are from MUTCD the year of the relevant edition has been included. One-Way Signs, a long-enduring form, is included in a category sign but the actual sign was omitted. Wrong Way signs were entirely omitted but now added. They should be in Informative Signs. This change has been made in this study. Selective Exclusion Signs, a long-enduring MUTCD sign, was omitted from the Database. Supplemental Plaques for Stop Signs were termed Supplementary Plates in older MUTCD editions. Emergency Parking Sign was also omitted from Database. It is from MUTCD 1971 edition.

Civil Defense/Emergency Management signs were placed in Regulatory Signs in the Database.

Differences Between Index & Text of Database By Category

Prohibitory & Restrictive Signs

Note in Text: no title. Add title to Text, Index
Long batching entries not always clear
Formulation of terms simplified in Index with less batching of terms in Index
Riding [Horses] Prohibited Sign: Prohibited lacking in Text; now added.
No Entry .... Height Sign; entry not complete in Text but now corrected.
Weight signs; duplicated signs in Text removed; one unclear entry; formulation simplified in index

Turn Signs: Index more batched than Text; simplified formulation needed.
Speed Limits; reformulation in index needed because of over-batching.
End of speed limit entries require reformulation.

Mandatory Signs

Turn Left (R)/Left (R) Turn Only: not in Text; retain if source found.
Traffic-Circle; in Text but not in Index. Added to Index.
Keep Right (L) in Text; now added to Index.
Two Way Left Turn Only/Center Lane-Left Turn Only; in Text. now added to Index

Standing & Parking Signs

The order of these signs in the Index was at odds with that of the Text. This study has a corrected listing of these signs.

Parking Prohibition Zone in Index should be Prohibited; now corrected.
Standing & Parking Prohibited Signs: Prohibited omitted in Index; now corrected.
Limited Direction Sign in Text should be Limited Duration Sign.
No Stopping Except on Shoulder in Text and now added to Index.
No Parking--Bike Lane: two lines on sign plate; punctuation for Text and Index an uncertain matter.
Rural Parking and accompanying terms: w/i Rural Parking Control category in Text.
Urban Stopping category: O/A heading in Text.

Pedestrian Crossing

Pedestrian mispelled in index
Miscellaneous
Cross on Green formulation in index may be adequate though at variance with Text.

Differences Between Parts E & H and Database:

Two categories in E & H are in alignment with the Database: Priority, and Mandatory. Prohibitory and Restrive has been commented on. Parking and Standing more correctly would be Standing and Parking. The variant classification attempted to summarize groups of terms instead of listing each term and thereby greatly expanding the classification. However, a clear correlation of between the summary groups and the actual signs fell short of actualization. The Prohibitory category appears in the correct form in the variant classification. Mandatory Signs includes considerable details for some forms while entirely overlooking other other forms.

2E Traffic Markings

2E1 Overarching & Sub-Overarching Terms

a) Overarching Terms with General Terms

- General Notes I, II
- Road Markings
- Traffic Markings
- Markings
- Roadway Markings
- Highway Markings
- Carriageway Markings

b) Sub-Overarching Terms

1) More General Terms

- Horizontal Markings*
- Horizontal Signing*
- Markings & Delineation Systems*
- Marking Devices*
- Marking System*/Markings System*
- On-the-Roadway Markings*
- Pavement Surface Markings*
- Surface Markings
- Road Surface Markings
- Pavement Markings
- Pavement Markings for Obstructions*
- Road Marking System*
- Roadway Delineation/Traffic Delineation Markings
- Roadway Marking & Delineation

2) More Restricted Terms

- Longitudinal Markings/Longitudinal Pavement Markings*
- Transverse Markings
- Hazard Markings
- Marked Surfaces*
- Obstruction Markings
- Obstruction Pavement Markings*
- Object Markings

Painted Lines*
Paint Markings*
Raised Horizontal Markings*
Raised Markings*
Traffic Paint Markings*
Barricades & Channelizing Devices

3) T-M Studies Category Terms*
Alphanumeric Markings
Graphic Markings
Horizontal Markings
Horizontal Markings: Longitudinal
Vertical Markings

2E2 Pavement & Curb Markings

a) Longitudinal Markings

1) Center Line Markings
Center Lines/Centerlines*/Center-Line Markings/Centerline Markings*/Center Markings/Centerline Stripes/Pavement Centerlines/Yellow Centerline Pavement Markings*
Directional Dividing Lines
Double Centerlines

2) Edge Lines
Border Lines Indicating the Limits of the Carriageway Limits
Carriageway Edgelines
Carriageway Limit Lines*
Edge Lines/Edge Line Pavement Markings*/Edge Line Markings*/Edge of Carriageway Markings*
Edge Markings/Edge-Markings/Edgeline Raised Markers*
Left-Hand Edge Lines*/Right-Hand Edge Lines*
Limits of Travelled Roadway Pavement Markings*
Pavement Edge Lines
Pavement Edge Lines Markings
Pavement Edge Markings

3) Lane Markings
Centerline & Left Edge Line Pavement Markings
Channelizing Lines

Continuous Lines for "Particular Situations"*
Highway Traffic Lines*
Lane Lines/Lane Lines Pavement Markings*
Lane Lines & Right Edge Line Pavement Markings*
Lane Lines at Controlled Intersections
Lane Markings
Lane Reduction Transition Markings*
Oblique Parallel Lines*
Pavement-width Transition Markings
Reserved Lane Markings
Road Markings for a Lane Reserved for Certain Categories of Vehicles
Solid Long Lines*
Temporary Lane Markings
Traffic Lane Markings
Traffic Lines*
White Lane Lines Pavement Markings*
White Lines*
White Line Markings*
White Line Road Markings*

4) Other Longitudinal Markings
Bi-Directional Retro-Reflective Marker*
Ceramic Marker*
Collimating System*
Electronic Powered Emissive Markers*
Formed-in-Place Markings*
Hot-Applied Surface Markings*
Lens-Type Reflectors*
Luminous Marks*
Magnetic Markers*
Marking Extensions Through Intersections or Interchanges/ Pavement Markings Extensions Through Intersections
Markings at Particular Locations
Markings for Particular Situations
Marking of Obstructions (Dual)

Non-Reflective Buttons*
Non-Reflective Marker*/Non-Retro-Reflective Marker*/
Non-Retro-Reflective Ceramic Marker*/Non-Reflective
Ceramic Pavement Marker
No-Passing Zone Markings/No-Passing-Zone Markings
Protuding Markers*
Radioactive Emissive Markers*
Raised Pavement Markers/Raised Reflective Pavement
Markers/Raised Reflective Markers/Reflective Pavement
Markings/Recessed Reflective Marker/Pavement Marker
Reflecting Road Studs/Catseyes/Cats-eyes*/Buttons*
Reflective Buttons*
Reflective Markers*
Retro-Reflectors*/Bi-Convex Reflectors*/Corner-Cub Reflectors*
Retro-Reflective Marks*/Retro-Reflective Markers*Retro-
Reflective Units*
Audible Roadway Delineation/Rumble Stripes/Rumble Strips/
Chatter-Bar*
Self-Luminous Reflectors*
Snap-Over Markers*
Snowplowable Reflective Markers
Streetcar Clearance & Transit Vehicle Guide Lines
Guide Lines for Turning Vehicles/Turn Markings/
Turning Movements of Vehicles

b) Transverse Markings
Crosswalk Lines/Cross-walk/Crosswalk/Crosswalk Markings/
Pedestrian Crossings
Cyclist Crossing Markings
Intersection Markings (Sub-OA)/Intersection Pavement Markings*
Limits Lines/Stop Bar/Stop Lines
Lines Indicating Points at Which Drivers Must Give Way
Railroad Crossing Markings/Railroad Crossing Advance Markings/
Railroad-Highway Grade Crossing Pavement Markings/
Approaches to Railroad Crossing Markings/Approaches to
Railway Crossing Markings

Transverse Lines at Controlled Intersections/Transverse Lines
at Uncontrolled Intersections

c) Other Pavement & Curb Markings
Advanced Speed Hump Markings*
Arrows*/Arrow Markings/Legends & Symbols/Word Markings/
Word Messages/Word & Symbol Markings
Approach Markings for Obstructions in Roadway/Marking of
Obstructions
Center & Left Edge Line Pavement Markings*
Centerline Markings for Shared-Use Paths
Colored Pavements
Coloured Cement Concrete Markings*
Curb Markings/Curb Markings for Parking Restrictions
Directional Markings
Dynamic Envelope Delineation*
Dynamic Envelope Markings*
Dynamic Envelope Pavement Markings*
Exit & Entrance Interchange Ramp Markings
Highway-Rail Grade Crossings Pavements Markings*
Markings for Bicycle Lanes*
Markings for Other Circular Markings*
Marking Patterns & Colors on Shared-Use Paths*
Median Islands Formed by Pavement Markings
Object Markers on Shared-Use Path
Oblique Parallel Lines*
Pavement Markings/Parking Space Markings/Paving Space Limits/
Parking Space Lines
Pedestrian Lines*
Preferential Lane Longitudinal Markings for Motorized Markings*
Preferential Lane Word & Symbol Markings*
Reflective Pavement Legends
Speed Hump Markings*
Speed Measurement Markings*
Standing & Parking Regulations
Stop & Yield Markings*

Surface Dressing Markings*
Train Dynamic Envelope Pavement Markings*
Yield Lines*

2E3 Hazard, Obstruction, & Delineation Markings

a) Hazard & Obstruction Markings
General Note
Clearance Markers
End of Road Markers/End-of-Roadway Markers*/End-of-Roadway Markings*
Markers Adjacent to the Roadway*
Markers for Objects in the Roadway*
Marking of Obstructions
Hazard Markers
Object Markers Types I, II, III
Reflective Markers

b) Delineators
Bidirectional Reflective Delineators/Monodirectional Markers
Guide Markers/Guide Posts
Delineators/Delineators-Curb*/Delineators-Upright*/Post Mounted Delineators/Post-Mounted Markers/
Road Delineators/Road-Edge Delineators/Roadway Delineator/
Roadside Delineator/Road Delineators/Road-Edge Delineators/
Post Delineators/Road-Delineation Markers
Curb Markings for Roadway Delineation
Lateral Delineators*
Lateral Signs*

c) Barricades & Channelizing Devices
General Note
Barricades, Types I, II, III
Barricades-Portable*
Barricades-Permanent*
Channelizing Devices
Channelizing Devices-Traffic Cones*
Channelization Devices*
Direction Indicator Barricade*

Drums
High-Level Warning Devices (Flag Tree)*
Heavy Barricades
Light Barricades
Portable Barrier*
Portable Flasher Support
Traffic Cones
Tubular Markers
Vertical Panels
Cones

Notes

New Terms:

UK MOT
Buttons
Cats-eyes

Lay 1991
Centerlines

Parts E & H
Alphanumeric Markings
Graphic Markings, H only
Horizontal Markings
Horizontal Markings: Longitudinal & Transverse Forms, E only
Horizontal Markings: Multi-Directional, Graphic & Alphanumeric Forms
Multiple-Directions Markings
Vertical Markings
Carriageway Limit Lines, E only
Continuous Lines for "Particular Situations", E only
Oblique Parallel Lines, E only
Yield Lines, E only

Pedestrian Lines, E only
Arrows, E only
Delineators - Curb, E only
Delineators - Upright, E only
Channelizing Devices - Traffic Cones, E only
Barricades - Portable, E only
Barricades - Permanent, E only

Note: Some changes in the classification of E and H are more in the form of category terminology than actual individual terms. This is especially true of first seven terms in Parts E & H list.

TCD Handbook 1983

Markings System
Non-Reflective Ceramic Pavement Markers
On-the-Roadway Markings
Paint Markings

MUTCD 2000 and 2003 [with earlier terms omitted from Database]

Advanced Speed Hump Markings
Approach Markings for Obstructions
Bicycle Detection Markings, 2003
Centerline & Left Edge Line Pavement Markings, 2000
Centerline Markings for Shared-Use Paths
Direction Indicator Barricades
Dynamic Envelope Delineation, 2000
Dynamic Envelope Markings, 2003
Dynamic Envelope Pavement Markings, 2000
Edge Line Markings
Edge Line Pavement Markings
End-of-Roadway Markers, 2003/End-of-Roadway Markings, 2000

Highway-Rail Grade Crossings Pavement Markings
High-Level Warning Devices (Flag Trees) [1971: picture only; 1978]
Intersection Pavement Markings
Lane Lines & Right Edge Line Pavement Markings, 2000
Lane Line Pavement Markings, 2003
Lane Reduction Transition Markings
Longitudinal Pavement Markings
Markers for Objects in the Roadway
Markers Adjacent to the Roadway
Markings for Bicycle Lanes, 2000
Marking Patterns & Colors on Shared-Use Paths, 2000
Markings for Roundabouts
Markings for Other Circular Intersections
No-Passing Pavement Markings
Object Markers on Shared-Use Paths, 2000
Obstruction Pavement Markings
Pavement Markings, 2000
Pavement Markings for Obstructions
Portable Barrier [1978]
Preferential Lane Word & Symbol Markings
Preferential Lane Longitudinal Markings for Motorized Markings
Speed Hump Markings
Speed Measurement Markings
Stop & Yield Markings
Train Dynamic Envelope Parking Markings
Yellow Centerline Pavement Markings 2003
White Lane Line Pavement Markings 2003

OECD 1975

Amber/Green/Red Markers
Bi-Directional Red & White Retro-Reflective Marker
Bi-Convex Reflectors
Cats Eye Centerline Markings

Cats Eye Marker
Centre Lines
Ceramic Marker
Channelization Markers
Collimating System
Coloured Cement Concrete Markings
Corner-Cube Reflectors
Edge Lines
Edgeline Raised Markers
Electrically Powered Emissive Markers
European Road Marking System
Formed-in-Place Markers
Highway Traffic Lines
Horizontal Markings
Horizontal Signing
Hot-Applied Surface Markings
Lanes Lines
Lateral Delineators
Lateral Signs
Lens-Type Reflector
Luminous Marks
Magnetic Markers
Marked Surfaces
Marking & Delineation Devices
Marking Devices
Marking Systems
Non-Reflective Markers
Non-Retro-Reflective Markers
Non-Retro-Reflective Ceramic Markers
Nonrectro-Reflective Buttons
Paint Markings
Painted Lines
Pavement Surface Markings
Ploughable Raised Markers
Protuding Markers

Radioactive Emissive Markers
Raised Horizontal Markings
Raised Markings
Raised Pavement Markers
Raised Reflective Lane Markers
Reflecting Buttons
Retro-Reflective Marks
Retro-Reflective Markers
Retro-Reflective Units
Retro-Reflectors
Reflective Markers
Road Marking & Delineation
Self-Luminous Reflectors
Snap-over Markers
Snowploughable Raised Markers
Solid Long Lines
Stop Lines
Surface Dressing Markings
Traffic Lines
Traffic Paint Markings
White Lines
White Line Markings
White Line Road Markings

Differences Between Index & Text:

Roadway Delineation, and Traffic Delineation Markings: Sub-Overaching terms in text; now separated.

Hazard, Obstruction & Delineation Markings: This is a corrected category that omitted "Obstruction" both in Index and in Text.

The Sub-Overarching Headings of Broader Terms is changed to More General terms in both Index and Text.

Center Lines/Center-Line Marking/Center Marking/Centerlines Stripes: together in Text, and now also in Index.

Pavement Centerline: In Text but omitted in Index; it is now added.
Pavement Markings, an overaching term, was also listed as individual term in Index but not in Text; now deleted from index.
Edge Lines: 9 items all together in Text; 3 additional in Index: Left-hand Edge Lines, Right-hand Edge Lines, Limits of Travelled Roadway. They are added to Text as well as Carriageway Limit Lines from Part E. Pavement Markings added to Limits of Travelled Roadway. Terms on separate line in Index but arranged in sub-groups in Text. Formerly all terms in one group in Text.
Border Lines: Different formulation in Index than in Text. Index altered to conform to Text.
Reserved Lane Marking: "Marking" omitted in Index but now added.
Raised Pavement Markings in Index but apparent error. It is changed to Raised Pavement Markers as is the case in the Text.
Reflective Road Studs: Reflecting in Text but now altered to "Reflective."
Lines Indicating Points at Which Drivers Must Give way in Text but omitted in Index; it is now added.
Pedestrian Crossing in Text but absent from Index; it is now added.
Limit Lines /Stop Bars/Stop Lines now together in Index as in Text.
Curb Markings in Text but omitted in Index; it is now added.
Color Pavements given in Text but correct term is Colored Pavements which has been added.
Reflectorized Pavement Legends in Index is now changed to Reflective Pavement Legends as listed in Text.
Stopping & Parking Restrictions in Index but Standing & Parking Restrictions in Text; the later is correct. Markings added to term.
Reflectorized Hazard Markers in in Index but not in Text; it is now added.
Reflective Hazard Markers: Term should be Reflector Marker for Index and Text. "Hazard" lacking in Text.
End of Roadway Markers and End of Road Markers both present in MUTCD 1988 and therefore both present in Index and in Text.
Clearance Markers situated in different places in Text and in Index. The term is now in the same location for both.
Most Delineators constitute one entry in Text but they appear on separate lines in the Index; that practice is continued in this study.
Object Markers Types I, II, III are to be found in the Text but they are configured

differently than in the Index.
Guide Markers & Guide Posts accompanied by notations of uncertain meaning in the Index for the Database. Those notations are now deleted.
Audible Roadway Delineation in Text has been changed to Delineator.
Road-Edge Delineator Markers has been added to Road-Edge Delineators.
Road Delineators is in Text but not in Index; it is now added.
Road-edge Delineators in Text but not in Index; it is now added.
Barricades have a different configuration in the Text than in the Index.
Cones in text but not in Index; they are now added.

Differences Between Part E & H and Database:

The Database classification is subdivided into major types and further divided into more detailed forms. The classifications of Parts E & H, by contrast, use basic forms (horizontal, vertical) with major forms placed within those forms. Details are to be found in variant classifications. Part H only partially includes specific types; Part E expands those types yet it does not include all types. This is in contrast to the classifications of Traffic Signals and Traffic Markings. The Database, therefore, has an advantage over the Parts E and H classifications. But both need further expansion.

Parts E and H have category forms that are new to the Database. Some of these are "coinings" of the compiler.

CHAPTER THREE
RAILWAY SIGNALS & OTHER DEVICES

Note

Not all of the Database terms are in this study. Terms that are included relate to physical signal terms and other terms that include the word signal. These latter terms include message, morphological and system forms. Solomon 2003 notes the two-fold use of the term Signal in railway operations: both fixed hardware and signal aspects. This two-fold usage can be confusing In this study where a non-physical term includes signal then that term is included. This practice goes beyond the use of the term in the classification, but omits many uses in the database. Solomon 2003 also refers to fixed signals and human signals. This creates a three-fold distinction. This study therefore includes term that incorporate the term signal though the physical signal has greater significance.

3A General Railway Signal Terms

3A1 Overarching Terms

a) Signal Terms

Signaling/Signalling
General Notes I, II
Signal
Signal Apparatus
Signal Appliance
Signal Device/Signalling Device
Signal System/Signaling System/Signalling System
Signal System, Device, or Appliance
Signal Implement

b) Fixed/Lineside/Railway-Railroad/Wayside Signal Terms

Fixed Signal
Fixed Railroad Signal
Fixed Signal Systems/Fixed-Signal System
Fixed Signaling*
Fixed Wayside Signal/Fixed Wayside System
Line Signalling System

Lineside Equipment/Lineside Signal/Lineside Signalling/Lineside Visual Signal/Lineside Fixed Signals
Line-side Signal*
Line-side Signaling*
Railway Signal/Railroad Signal
General Note
Railway Signaling/Railway Signalling/Railroad Signaling
Railway Signaling & Control Systems/Railway Signaling & Control
Railway Signaling, Control & Communications Systems
Railroad Signaling System/Railway Signal System/Railroad Signal System/Railway-Signal System/Railway Signalling System/ Railway Signaling System
Wayside Signal/Wayside Signal System/Wayside Signals & Controls/Wayside Signaling*

c) Other Overarching Terms [Some terms may need to be relocated]

Electric Light Signal*
Fixed Trackside Signal/Fixed Trackside Color Light Signal
Immovable Signal
Light Signal*
Night Signals*/Night Signaling*
Optical Signals/Optical Signs & Signals
Rail Aids*
Rail Signals*
Railway Visual Signals*
Roadway Signals
Safety Aids*
Safety Signals*
Stationary & Fixed Signals
Trackside Devices*
Trackside Railway Visual Signalling Systems*
Trackside Signalling/Trackside Signals/Track-Side Signals/Track Side Signals/Trackside Railroad Signals
Trackside Visual Signalling*
Visual Lineside Signal*
Visual Signals/Visual Signalling/Visual Signalling System

Warning System
Wayside Devices*

d) Possible/Partial Overarching Terms
  1) Energy & Technology-Related Terms
    General Note
    A.C. Signaling
    All-Electric Power Signalling
    Electric Signal/Electric Signal System/Electric Signaling/Electric Signalling/Electrically-Operated Signals
    Electro-Gas Signal
    Electro-Mechanical System
    Electro-Pneumatic Signal/Electro-Pneumatic Signalling
    Low-Pressure Electro-Pneumatic Signalling
    Manually Operated Fixed Wayside Signals/Manually Operated Signals/Manual Signals/Manual Signalling
    Mechanical Signals/Mechanical Signalling
    Motor-Operated Distant Signals
    Power Operated Signals/Power-Operated Signals/Power Signalling/Power-Signalling/Power-Worked Signals
  2) Physical-Morphological Overarching Terms
    General Note
    Main Route Signals
    Main Signal/Main Line Signal/Mainline Signal
    Primary Signal
    "Universal" Signal
    Symbol Information Processing
  3) Possible Overarching Terms-Miscellaneous
    Functional Signal System
    Safe Working/Safeworking/Safe-Working/Safeworking Appliances
    Signal-&-Control Systems/Signal & Control Systems
    Signal & Switch Systems
    Signalling Devices
    Trackside Warning Signals
    Train Signals & Controls

Visual & Audible Signals
  4) Terms Including Hardware Components
    Bracket Signal
    Bridge Signal
    Doll Signal
    Lattice Post Bracket Signal
    Lattice Post Signal
    Left-Hand Bracket Signal
    Tubular Steel Bracket Signal

3A2 Message, Morphology & System Terms

Note

This segment conflates three separate units of the Database. The Database was intended to be a comprehensive coverage of terms: fixed signal forms but also closely-related terms other than fixed signals. This index/classification centers on fixed signals (since the modal classification is that of fixed entities). For that reason only terms that include inclusion of the term Signal (or related terms) are included. A clear separation of hardware terms from messages, functions and systems may have generated less confusion but railway practice development did not follow that direction. Terms that include the word signal are included though non-fixed signal terms are separated from actual signal apparatus. The following material includes just two color terms. There are many more color terms. But consulted sources include only these terms with signal or marker attached to them. Marker is included since it is a major safety aid term.

a) Messages: Aspects & Indications
  1) Color
    Double Yellow Signal
    Lunar White Marker Lamp
  2) Aspects
    Two-Aspect & Related-Forms: 26 with Signal, Signalling or Indicator

Three-Aspect: 20
Four-Aspect: 13
Other Forms: 14

3) Indications
Clear Signal
Proceed Signal
Caution Signal
Approach Signal
Stop Signal
Danger Signal
Preliminary Caution Signal
Limited Clear Signal/Medium Clear Signal/Slow Clear Signal
Limited Approach Signal/Medium Approach Signal/Medium Advance Approach Signal
Medium Approach Slow Signal/Slow Approach Signal/Restricting Signal
Approach Limited Signal/Approach Medium Signal/Approach Slow Signal/Advance
Approach Medium Signal/Advanced Approach Signal
Stop & Proceed Signal/Grade Signal
Medium Signal
Caution, Low-Speed Signal/Caution, Medium-Speed Signal
Caution Normal Speed Signal
Clear, Medium-Speed Signal
Normal Speed Signal
Clear, Normal-Speed Signal
Aspect, Phantom Signal/Phantom Signal
False-Clear Signal

b) Morphology

1) Overarching Terms
Running Signals
Primary Signals
Running Line Signal
Color Light Running Signals
Main Signals

Main Line Signals/Main-Line Signals
Main Line Running Signals
Main Running Stop Signals

2) Stop Signals
Advance Signal
Advanced Signal
Buffer Stop Signal
Coleigny-Welch Signal Lamp
Dead Signal
Fixed Stop Signal
Home Signal/Home-Signal/Rear Home Signal/Signal, Home/Outer Home Signal/Inner Home Signal/Intermediate Home Signal/Second Home Signal/Third Home Signal
Splitting Home Signal
Splitting Signal
Stop Signal
Color Light Stop Signal/Automatic Stop Signal/Semaphore Stop Signal/A.P. Permissive Stop Signal

3) Starting Signals
Starting Signal
Starter Signal
Advanced Starting Signal/Advance Starting Signal/ Section Signal

4) Distant Signals
Auxiliary Signal
Distant Signal/Distant Semaphore Signal/Distant (Warning) Signal/Hall Distant Signal/Distant-Signal
Warner Signal
Warning Signal
Outer Distant Signal/Inner Distant Signal/Distant Signal Color Light/Color Light
Distant Signal
Advance Signal
Approach Signal
Unworked Distant Signal/Signal, Distant/Splitting Distant Signal

5) Systems
- Absolute Signal
- Advanced Section Signal
- Automatic Block Signals
- Automatic Signals
- Block Signal
- Block & Interlocking Signals
- Controlled Signals
- Holding Signals
- Interlocking Dwarf Signal
- Intermediate Block Signal
- Intermediate Signal
- Interlocking Signals/Signals, Interlocking
- Permissive Signal
- Semi-Automatic Interlocking Signals
- Semi-Automatic Signals

6) Route & Junction Signals
- Directing Signal
- Entry (Route Signal/Entry (Route) Light Signal
- Junction Signal
- Route Signal
- Route & Junction Signals
- Routing Signal
- Turnout Signal
- Four-Way Shunting Signal

7) Other Signal-Running Operations
- AB Entry Signal
- Backing Signal
- Non-Stop Permissive Automatic Signal
- Wrong Road Signal/Wrong-Road Signal
- Station Signal
- Station Protection Signal
- Platform Signals
- Precaution Signals
- Protecting Signals

- Repeating Signal
- Repeater Signal
- Repeat Signal
- Banner Repeater Signal
- Electric Repeater Signal
- Tunnel Signal
- Tunnel Junction Signal/Tunnel Repeating Signal
- Tonnage Signal
- Grade Signal
- Co-Acting Signal
- Protection Signal

8) Subsidiary Signals
- Subsidiary Signals
- Switch Signals/Points Signals

9) Physical Shunting Signals
- Shunt Signal
- Shunting Signal
- Signal for Shunting/Signals for Shunting Movement
- Switch Signal
- Disc Shunting Signal
- Shunting Disc Signal
- Ground Shunt Signal
- Mechanical Shunting Signal
- Position Light Shunt Signals
- Shunt Signal (Position-Light)
- Power-Operated Shunt Signal

10) Function-related Shunting Signals
- Backing Signal
- Calling-on Signal
- Close-up Signal
- Draw-Ahead Signal
- Draw-Ahead Position-Light Subsidiary Signal
- Elevated Shunting Signals
- Facing Shunt Signals
- High Shunting Signal

Humping Signal/Hump Shunt Signal
Independent Shunt Signal
Limits of Shunt Signal
Main/Shunt Signal
Miniature Arm Shunting Signal/Miniature Arm Shunt Signal
Running Shunt Signal
Running Subsidiary Shunt Signal
Set-Back Signal
Shot Shunting Signal
Shunt Ahead Signal/Shunt-Ahead Signal
Sub-Shunting Signal
Subsidiary Shunting Signal
Siding Shunt Signal
Warning Signal

11) Siding, Train Yard & Other Signals
Goods or Siding Signal
Hump Signal/Humping Signal
Marshalling Yard Signal
Outlet Signal
Siding Signal
Take Siding Signal
Terminal Signals
Yard Exit Signals
Dead-End Signal
Directing Signals

12) Message-Related Signal Terms
Absolute Signal
All Right Signal
Caution Signal
Cautionary Signal
Deceleration Signal
Permissive Signal
Permissive Stop Signal
Proceed Signal

13) Miscellaneous Signals

Accept Signal/Accepting Signal
Appendant Signal
Arrival Signal
Deceleration Signal
Dragging Equipment Signal
Intermediate Signal
Merry Go Round Signal
Outer Signalling
Platform Line Signal
Snow Shed Territory with Color Light Signals
Station Departure Color-Light Signal
Subsidiary Signal
Temporary Signal
Track Occupancy or Departure Signal
Trolley Line Signal
Yard Track Signal

c) Systems

1) Overarching Terms
Block Signal System
Block Signaling/Block Signalling
Block System of Signals
System, Block Signal
Fixed Block Signal System
Electro-Pneumatic Block Signal System
Blocking Signals

2) Manual Block Signal System
Manual Block Signal System
Manual Block Signaling/Manual Block Signalling
Manual Block Signal System
Manual Block Signal System-Space Interval
Manual Signalling

3) Controlled Manual Block Signal Systems
Controlled Manual Block Signal System
Controlled-Manual Block-Signalling

4) Automatic Block Signal System Terms

Automatic Block Signalling on Double Track/Automatic Block Signalling on Single Signalling
Automatic Signalling
Control System for Single-Track Signaling
Double-Track Block Signalling
Multiple-Block Signalling
Roadway Automatic Block Signal System
Semi-Automatic Block Signalling
Three-Block Signalling
Two-Block Automatic Signalling
Three-Block Automatic Signalling
Single-Track Automatic System
Single-Track Automatic Signalling
Single-Track Automatic Signal System

5) Absolute/Permissive Terms
APB Single-Track Signaling
Absolute Permissive Block Signaling
A.P.B. Scheme of Signaling/Absolute-Permissive-Block Scheme of Signaling
Absolute & Permissive Signaling on Double Track

6) Other Block Signals
Moving Block Signalling
Moving Block Signal
Nachod Signal System
Overlap Block Signal System
Overlap Scheme of Signaling

7) Interlocking Signalling Terms
Interlocking Signalling
Electrical Signal Interlockings
Key Interlocking Signalling
Mechanically-Interlocked Points & Signals
Signal/Point Interlocking

8) Train Control Terms
Overarching Terms: Signal & Control System
CTC Terms: CTC Railway Signaling System

9) Specific Named Terms
SNCF Signalling System for VHS/VHS System of Signalling & Signalling System for High Speed
Micro Processor-Based Signalling System
TBS, Transmission-Based Signalling

Note

New Terms:

Wayside Signaling, Vantuomo 1993

Fixed Signaling, Grafton 1896
Safety Signal, Grafton
Night Signals, Grafton

Line-Side Signals, Solomon 2003
Line-Side Signaling, Solomon 2003
Light Signal, Solomon 2003
Electric Light Signal, Solomon 2003

Wayside Devices, Welty 5-1988/C & S ... 1996

Night Signaling, Breckenridge 1967

Trackside Devices, Sterner, ud

Fixed Trackside Color-Light Signals, Kanner 1992

Visual Lineside Signals, Allen & Woolstenholmes 1991

Safety Aids, Chandrika 1998

Railway Visual Signals, Tansley 1985
Trackside Railway Visual Signalling Systems, Tansley

Rail Aids, Part J
Rail Signals

The Database also includes Primary Overarching Terms in Other Languages. Some terms are overarching while others are for full and partly lighted signals. One term, Light Signals, is included thogh the Database omits that term from general overarching terms. The Database also includes a Signal Component segments. Some of those terms are signal terms though containing a hardward component. The signal terms are included in this study.

Differences Between Index and Text of the Database:

Bridge Signal in Text; add to Index.
Fixed Wayside Signal in Text; add to second term of Index.
Railway Signaling System in Text; add to Index.
Railway Signaling and Railway Signalling separated by comma in Index; changed to slash.
Train Light Signal in Text; add to Index.
Left-Hand Bracket Signal in Signal Components; add to Index.
Restriction Indication in Index should be Restricting Indication.
Medium Signal in Index is duplicated; omit one term.
Medium-Clear: hyphen in Text but not in Index.
Approach Diverging Route: route in Text; add to Index.
Approach-Medium: hyphen in Text but not Index.
Coleigny-Welch Signal Lamp omitted from Index; now added.
Advance Starting Signal Starter Semaphore: not in Text; omit last two words from Index.
Fixed Distant Signal lacks Signal in Text.
Outer Distant, Inner Distant Signal: / not rather than , in Index.
Tunnel Junction Signal/Tunnel Repeating Signal: Text has repeater.
Color Light Points Indicator: Colour in Text.
Points Indicator-Arrow: Text adds Type to term.

Main/Shunt Signal in Text; Signal omitted in Index.
Decceleration Signal in Index and in Text though in a different segment in latter.
Merry Go Round Signal; not in Text but source located and needs to be in Text.
Snow Shed ... Color Lights: Text has C.L.
Automatic Block Terms (1E d)):
Lower entries listed in Text under Absolute/Permissive Terms (1E1 d))
[d) should be e)].
Automatic Train Operations/Automatic Train Operation System: Text has Train Protection System
Train Stop has hyphen in Index but omitted in Text.
Automatic Train-Stop Devices--separate entry in Text; not in Index; now added.
Train Situation Indication: Text has Indicator.
Comtrac lacks second "c" in Index.
Microlok: Text has Microlock.

Differences Between Classifications and Database:
OA terms: Parts F and H employ Trackside Signals as a primary term though a minor and infrequently used term in the Database which reflects the literature.

Note: Chapter 1 of the Database takes up overarching terms, messages, morphology and systems. Therefore only limited terms shared by classifications and database. Some limited terms may be shared -- or partially so -- in other parts of the study (e.g., Morphology terms such as Shunting may be combined with physical term such as Position-Light Signal).

3B Fully & Partially-Lighted Signals

3B1 Overarching Terms

Illuminated Signal
Light Signal
Railway Signal Lights
Signal, Light
Signal Light
Visual Signal Light

3B2 Color Light Signal Terms

a) Principal Signal Types

1) Basic

Color Light Signal/Color-Light Signal/Colour Light Signal Colour-Light Signal/Colourlight Signal
Color-Light Type/Color Light Type/Color-Light Type Signal/ Colour-Light Type of Signal
Colorlight*/Color Light*/Color-Light Signaling*

2) Limited-Variants

Signal, Color Light
Colour Light/Colourlight/Colour-Light
Color Signal/Colour Signal
Coloured Lights

3) Variants

Automatic Colour-Light Signal
Colour Light Running Signals/Colour-Light Running Signals
Multiple-Lens Colour Light Signal/Multiple-Lens Colour-Light Signal/Multple-Lens Four-Aspect Colour-Light Signal/Colour-Light Signals Multi-Aspect Vertical
Multi-Colored Light Signal
Multi-Unit Coloured Light Signal
Multi-Head Color-Light Signals*
Single-Head Color-Light*
Spreadlight Colour Light Signals/Long Range Spread Light Colour Light Signal/Spreadlite Colour Light Signal
Three-Head Color-Light Signal*

4) Signaling Terms

Automatic Colour-Light Signalling
Color Light Signaling/Colour Light Signalling/Colour-Light Signalling/Color-Light Signalling (Taiwan)
Colour Signalling
Electric Automatic Colour-Light Signalling

b) Other Color Light Signals

1) Distance Terms

Color-Light Type Signal, SR/Short Range Signals
Medium Range Color Light Signals/Medium Range Color Signals
Long Range Colored Light Signals
Long-Range Color-Light Signal
Long Range Colour Light Signal
Long Range Daylight Signal
Long Range Signal
Long Range Type
Long Range Daylight Type Color Light Signal
Short Range Color Light Signals/Short-Range Color Light/ Short Range Colour Light Signal
Short-Range Color-Light signals [Vertical Type, Subway Type]

2) Lens Arrangement Terms

Long Range Color Light Signals, Vertically Arranged/ Type D Long Range Color Light Signals, Vertically Arranged/Type D (Vertical) Color-Light Signals
Horizontally Arranged Long Range Color Light Signals/ Long Range Color Light Signals, Horizontally Arranged/ Type E (Horizontal) Color Light Signals/Horizontal Color-Light Signal*/Horizontally Orientated Color-Light Signal*
Triangular Arrangement Color Light Automatic Block Signals/Color Light Signals Arranged in a Triangle/ Type G (Triangular) Color-Lights Signals/Triangular Position-Color-Light*/Color-Light with Triangular Light Pattern*/Triangular-Pattern Color-Light*/ Triangular-Pattern Color-Light Signal*

Cluster Type Signals/Cluster Type Four-Aspect Signals/
Cluster Colour-Light Signals
Colour-Light Signals Multi-Aspect Cluster

3) Morphology & Other Terms

Approach-Lit Color-Light System/Approach-Lit
Mechanical Colour-Light Signals
Christmas Tree
Color-Light Automatic Block Signals*/Color-Light Block
Signals*/Color Light Interlocking & ABS Signal*
Colour-Light Route Indicator
Colourlight Signal-Underground Style
Colour Light Signal (Humping)
Colour Light Shunt Signal
Day Colour-Light Signal
Double Light Signal
Fairyland
Mechanical Color-Light Signals
Miniature Colour-Light Signals/Miniature Colour Light
Signals
Three-Aspect Day-Time Colour-Light Signals
Type-D Color-Light*
US&S Color-Lights*/Safetran (3-Light) Color-Light Signals*/
GRS Color-Light*/Raco Color-Light*/GRS Triangular
Color-Light*/GRS Triangular-Pattern Color-Light Signal*

3B3 Searchlight Signals

General Note
Searchlight
Searchlight Signal
Search-Light Signal
Searchlight Type
Searchlight Type Signal
Search Light Signal
Search Light Type Signal
Searchlight Color Light Signal
Searchlight Type of Colorlight Signal/Searchlight Type Colorlight Signal

Searchlight Type Colour-Light Signals/Searchlight Type Colour Light
Signal
Searchlight-Type of Color-Light Signal
Searchlight Type of Single-lens Colour-Light
Colour Searchlight Signal
Color-Light Signal, Searchlight Type
Dwarf Searchlight Type
Color Light High Signal, Searchlight Type/Color Light Dwarf Signal,
Searchlight Type
GRS Searchlight*
Hall Searchlight*
Hall-Type Colour-Light Signal
LEDS Searchlight Signal
Right-Hand Searchlight*
Short-Range Signal*
Single-Head US&S*
Single Lens Searchlight Signal
Single Light Signal
Twin-Head Searchlight Signal*/Twin Head Searchlight Signal*
Two-Head Searchlight Signal*

3B4 Other All-Lighted Signals Terms

a) Single Lens Units : Morphological Dimension Frequently Present

1) Terms Slightly More Morphological Than Physical

Marker
Marker Lamp
Marker Light

2) Terms Somewhat More Morphological Than Physical

Automatic "A" Signal/"A" Light/Illuminated "A" Light
"L" Light
Multiple-Aspect Light Signal

b) Dwarf Signals [Frequently Multiple Lens]

Dwarf Signal
Signal, Dwarf
Colour Light Dwarf Signal/Color Light Dwarf Signal
Dwarf Type Signal

Dwarf Signal-Electrical
Dwarf Searchlight Signal/Dwarf Colourlight Signal
Dwarf Colourlight Shunting Signal

c) Undifferentiated Physical Signals Terms
Auxiliary Signals
Back Light I
Back Light II
Back-Light/Backlight
Side Light
Flasher Lights
Flashing Lights (Signal)/Flashing Light Signal/Flashing Lights
Flashing Signal
Signal, Flashing Light
Revolving Light Signal
Fixed-Focus Signal
High Signal
Light Strip
Modular Unit
Multiple Unit Signal
Multiunit
Signal Lamp

3B5 Position Light, Color-Position Light, & Alphanumeric, Graphic & Geometric Signals

a) Position Light Signal Terms
General Notes I, II, III
Position Light*/Position-Light*
Position Light Signal
Position-Light Signal
Position Light/Position-Light
Position-Light Type Wayside Signal
Beam-Light Signal/Beam Light Signal
Signal, Position Light
Daylight Position Light Signal
Position Light Signal (LR)

Position Light Dwarf Signal
Position Light Shunt/Position-Light Shunt Signal
Position Light Humping Signal/Position Light Humping Speed Signal
Ground Position Light Shunt Signal
Hump Shunting Signal
Position Light Junction Indicator
Position Light Automatic Type
Position Light Speed Signal/Toton Position Light Speed Signal
Position Light Subsidiary Signal
Position-Light System*
Pattern Indicator
Pedestal Signal
Subsidiary Signal
Position Light Speed Signal
Dwarf Position Light*
Wing Lights

b) Color Position Light Signals
General Note
Color Position Light Signal
Color-Position Signal
Color-Position-Light Signal
Signal, Color Position
Colour Position Light Signal
Color-Position-Light High Signal/Color-Position-Light Dwarf Signal
Color Position Light Dwarf Signal
Position-Color Light Signal
Color & Position Signal

c) Symbolic Signal Terms
General Note

1) Multi-Lamp/Theatre Indicators
Multilamp Route Indicator/Multi-Lamp Route Indicator/Multi-Lamp
Seven-Way Route Indicator/Three-Way Theatre Route

Indicator
Theatre Multi Lamp Route Indicator
Theatre-Type Route Indicator/Theatre Type Route Indicator

2) Stencil Indicators
Stencil Indicator/Stencil Type Indicator/Stencil Type-Indicator/Stencil Route Indicator/Stencil Type Route Indicator/Stencil, Number or Letter Type/Stencil [Type]

3) Other Indicators
Arrow Indicator/Single Arrow Indicator/Double Arrow Indicator
Indicator/Indicator [Stencil]
Linear Indicator*
Moving Slide Type Route Indicator
Projector Type Route Indicator/Projector Type

3B6 Cab Signals Terms

a) Major Cab Signal Types
Cab Signal
General Note I, II, III
Cab-Signal
Automatic Cab Signal/Automatic Cab Signal System/Automatic Cab Signal System (ACS)/System, Automatic Cab Signal
Automatic Cab-Signal System Continuously Controlled Signal, Cab
Cab Signal System
Cab Signaling/Cab Signalling/Cab-Signaling/Cab Signalling
General Note I, II
Cab-only Signals*

b) Operational Terms-Cab Signals
Cabmatic
A-C./D-C. Cab Signals//A-C./D.C. Coded Cab Signal System
CATC Cab Signals
Coded Continous Cab Signal System/Coded Continuous Cab Signaling
Continuous Cab Signal System

Continuous Cab Signal/Continuous Cab Signalling
Continuous Inductive Cab Signal
Continuous System of Cab Signalling/Continuously Controlled Cab Signal/Continuously Controlled Cab Signal
Continuous Controlled Cab Signal System
Four-Aspect Coded 100 Hz Cab Signal System/Four-Indication Code Continuous Inductive Cab Signaling/Four-Indication Code Continuous Cab Signal System
Intermittent Cab Signaling/Intermittent Cab Signal System
Multiple-Indication Coded Cab Signal
Three-Speed Train Control Cab Signal
Two-Indication Non-Code System [Cab Signal]/Three-Indication Non-Code Track & Loop System [Cab Signal]
TVM 430 Cab Signalling System

c) Partly Morphological Terms
General Note
Four-Aspect Cab Signal
Four-Aspect Cab Signal System
Four-Aspect Cab Signaling*
Four-Aspect System* [Cab]
Four-Indication Cab Signal
Four-Indication Cab Signal System
Five-Aspect Cab Signal
Five-Aspect Cab Signaling
Multiple Aspect Cab Signal
Three-Indication Cab Signal
Two-Aspect Continuous Inductive Cab Signal*
Two-Aspect, Three-Aspect Cab Signal System*
Two-Indication Cab Signal

d) Other Cab Signals
ACSES Cab Signal*
Advance Cab Signal*
Cab Lights
Cab Signal Indicator*
Cab Signal Subsystem

Enforced Cab Signaling
System of Cab Indicators
Visual Cab Signals
Wayside Cab Signal Equipment
On-Board Cab Signal Equipment
Visualizer

e) Cab Signals with Sound Dimension [Primarily Acoustical Signal segment]
Indicator, Cab, Audible
Cab Indicators [Audible, Visual]
Cab Signal with Whistle & Acknowledger/Coded Continuous
Cab Signals with Whistle & Acknowledger

3B7 Partially-Lighted Signals: Semaphore

a) Overarching Terms
Semaphore Signals/Semaphores
General Notes, I, II, III
Ancient Lights
Railway Semaphore Signals/Semaphore Railway Signals
Dwarf Semaphores/Dwarf Signals/Dwarf Type Signal
Fixed Semaphores*/Fixed Semaphore Signal
Mechanical Signalling/Semaphore Mechanical Signalling
Mechanical Lower Quadrant
Non-visible Signals*
Semaphore Light
Semaphore Type
Signal, Semaphore
Visual Semaphore Signals*

b) Specific Signals
1) Lower Quadrant & Upper Quadrant Signals
General Note
Lower Quadrant/Upper Quadrant/Lower Quadrant Semaphore/ Upper Quadrant Semaphore/Lower Quadrant Signal/Upper Quadrant Signal/Lower Quadrant Semaphore Signal/Upper QuadrantSemaphore Signal/Upper-Quadrant Signal*
Lower-Quadrant Signal/L-Q Semaphore

UQ Type Semaphore/U-Q Semaphore Type Signal
Left-Hand, L-Q Semaphore Signal/Left-Handed Upper-Quadrant Semaphore*
Modified LQ Signalling

2) Somersault Signals
Balance Arm Signal/Self-Balancing Somersault Signal/Somersault/ Somersault Pattern, Semaphore/Somersault LQ Semaphore/Somersault Type Signal/Tumbler/Tumble Arm Signal/Tumble-Arm Semaphore*Semaphore Somersault Signal/U-Q Somersault
Somersault Home Signal
Centrally Balanced Semaphore/Centre-Balance Signal

c) Semaphores: Methods of Operation
General Note
All-Electric Semaphore*/All-Electric Semaphore Signal
Electric Motor Semaphore Signal/Electric Motor Signal/Electric-Motor-Driven Semaphore Signal/Electrically-Operated Semaphore
Motor-Driven Semaphore
Motor-Operated Semaphore
Motor Semaphore Signal
Lower-Quadrant All-Electric Semaphore*
LQ Signal Electric Operated
Electro-Gas Semaphore/Electrogas Signal/Electro-Gas Signal
Electropneumatic Lower-Quadrant Semaphore*/Electropneumatic Semaphore*/Electro-Pneumatic Semaphore/LQ E-P Semaphore/Electro-Pneumatically-Semaphore/Pneumatic Power Signal*
Oil-Lit Semaphore Signal/Oil-Lit LQ Stop & Distant Signal
Power-Operated Signal
Mechanical Dwarf Signal
Mechanical Ground Signal
Mechanical Lower-Quadrant Semaphore*
Mechanical Operated Semaphore Signal
Mechanical Semaphore
Mechanical Signal

Mechanical UQ Signals
Manually-Operated L-Q Semaphore Stop Signal
Manually-Operated Semaphore
Base-of-Mast Mechanism/Base-of-Mast Mechanism Semaphore*/Base-of-Mast Semaphore/Top-of-Mast Semaphore/Top-of-Mast Mechanism/Top-of-Mast Mechanism Semaphore*
Pneumatic Semaphore
Semaphore-Left of Mast/Semaphore-Right of Mast

d) Semaphores: Morphologically-Related Terms
General Note
Automatic Block Semaphores*/Automatic Block Semaphore Signal
Two-Arm, Two-Position Mechanism
One-Arm Three Position Mechanism
Three-Position Electro-Pneumatic Semaphore
Home Electro-Pneumatic Semaphore Signal
Distant E-P Semaphore Signal
Distant Semaphore
Five-Arm Lower-Quadrant Semaphore*
Home Semaphore
Limited Clear U-Q Signal, Vanns
Lower Quadrant Block Semaphore*
L-Q Distant Signal, Taylor
L-Q Stop Signal,
One-Arm Two-Position Signal
One-Arm Two-Position-LQ--Signal
One-Arm, Two-Position UQ Dwarf Signal
One-Arm Signal
One-Arm Mechanical Ground Signal
One-Blade Lower-Quadrant Signals*
Pneumatic Block Semaphore*
Semaphore Distant Signal
Semaphore Manual Block
Semaphore Running Signal
Semaphore Shunt Signal

Semaphore Stop Signal
Semaphore-Type Automatic Block Signal
Single-Arm Upper-Quadrant Semaphore*
Stop Semaphore
Two-Arm Mechanical Ground Signal
Three-Position Lower-Quadrant Semaphore*
Three-Position Slotted-Mast Semaphores*
Three-Position Upper Quadrant
Three-Position Upper-Quadrant Semaphore*/Three-Position Upper Quadrant Signal/Three-Position Upper Quadrant Type*
Three-Position Semaphore Signal
Two-Position Lower-Quadrant Semaphore*
Two-Position Semaphore
UQ Splitting Signal
Upper Quadrant Two-Position
US&S Style-B Lower-Quadrant Block Signal*
Three-Arm Signal
Three-Aspect Semaphore
Three-Blade Semaphore*/Three-Blade Upper-Quadrant Semaphore*
Three-Position Semaphore Block Signal
Two-Position Semaphore Upper Quadrant
Three-Position Semaphore Upper Quadrant
Twin-Arm Lower-Quadrant Semaphore*
Two-Arm E-P Dwarf Signal
Two-Arm Signal
Two-Arm Two-Position Signal
Two-Arm Two Position Signal
Two-Arm Two Position LQ Signal
Two-Aspect Upper Quadrant
Multi-Aspect Upper Quadrant

e) Semaphores: System-Related Terms
General Note
Automatic Block Semaphore
Automatic Motor-Operated Semaphore
Automatic Semaphore

Automatic Semaphore Signal
Automatic Three-Position Upper Left-Hand Semaphore Signalling
Semaphore Automatic Block
Semi-Automatic Electro-Pneumatic Distant Semaphore
Upper Quadrant Automatic Signal

f) Other Semaphore Terms

Back Light
Backing Signal
Banner Repeater
Display Board
Double Arm Semaphore/Double Arm Station Semaphore
Electric Semaphore
Equal Balanced Bracket Signal/Balanced Bracket Signal/Three Doll Balanced Bracket Signal/Two-Doll Balanced Bracket Signal Co-Actors
GRS Model 2A Semaphore*/GRS Model 2A Upper-Quadrant Signal*/ GRS Model 2A Lower-Quadrant*/GRS Model 2A Dwarf Semaphore*
Hall Style-K Upper Quadrant Semaphore*/Hall Lower-Quadrant Semaphore*
Hudson Type of Semaphore
Illuminated Semaphore
Lartigue Signal
Left-Handed Semaphores*
Mininature Semaphore Signal
Miniature Repeater Semaphore (Co-Acting)
Miniature Arm Signal/Miniature Semaphore Signal
Model 2A Upper Quadrant Semaphore*
Parabolic Semaphore Signal
Upper Left-Hand Quadrant Semaphore Signal
Repeater
Semaphore Position-Type Signal*
Single Arm Semaphore
Slotted-Post Semaphore
Slotted Post

Smash Board
Station Semaphore/Station Semaphore Signal
Style-B Signals*
U Q Pipe-Operated/Dwarf Signal
*US&S Style-S Semaphore/US&S Style-B Semaphore/US&S Style-B Lower-Quadrant Semaphore/US&S Style-T Semaphore/US&S Style-S Upper-Quadrant Semaphore/US&S Style-B Lower-Quadrant/US&S Style-S Upper-Quadrant/US&S Style-B Lower Quadrant Semaphore/US&S Lower-Quadrant Semaphore/US&S Lower-Quadrant Signal/US&S Style-T-2/US&S Style-T Upper-Quadrant/US&S Style-T Upper Quadrant Signal

3B8 Partially-Lighted Signals: Signal Boards, Disc Signals & Other Signals

a) Signal Boards

1) Overarching Terms & Terms in Other Languages

General Note
Signal Board
Board
Board Signal
Form Signal
Klapbord
Pantella

2) Specific Board Terms

Mechanical Signal Board*
Perforated Board Signal
Pivoted Board/Pivoting Board Signal
Quarter-Rotating Chequer-Board/Chessboard
Revolving Board
Revolving Board & Lamps

b) Disc Signals

General Notes
Disc I, II, III, IV, V

1) Disc Signals Containing the Word Disc

Automatic Enclosed Disc Signal
Banjo
Banjo Signal*

Bracketed Disc
C.I. Pillar Disc
Compound Ground Disc
Disc/Disc Signal
Disc & Crossbar/Disc & Crossbar Signal/Disc-&-Crossbar Signal
Disk Signal
Double Disc/Double Disc Signal/Double-Disc Signal
Double Disc & Crossbar Signal
Dwarf Signal/Three-Position Dwarf/Two-Position Dwarf Signal
Enclosed Disc/Enclosed Disc Signal
Exposed Disc Clockwork Type Signal
Floodlit Ground Disc/Flood Lit Disc/Flood-Lit Disc
Gallows Type of Signal (Disc)
Ground Disc/Ground Disc Signal
Ground-Level Dwarf Signal
Half-Open Disc Signal
Hall's*
Hall Disc*/Hall Disc Signal*/Hall's Enclosed Disc*
Hall Signal*
Independent Disc
Mechanical Disc
Mechanical Revolving Disc Signal
Pattern Ground Disc
Power-Operated Disc
Revolving Disc Signal/Revolving Disc
Tommy/Tommy Dodd
U.Q. Power Worked Dwarf Signal

2) Banner Signals [Exposed Disc Forms Under the Banner Name]
Banner*
Banner Signals
Banner Box Signals
Banner Box Type (Ireland Signal)
Banner Box Type Signal
Banner Clockwork Type

Banner Repeater Signal
Banner Type Signal/Banner-Type Signal
Banner Type Train Order Signal
Box Type Train Order Signal
Clockwork Exposed Disc Signal
Clockwork Signal
Exposed Banner Clockwork Type Signal
Ireland Banner Box Type Signal
Revolving Banner Signal/Rotating Banner Signal
Top-of-Mast Exposed Banner Signal

c) Morphological-Related Terms
General Note

1) Switch Signals
Dodson Switch & Signal Lamp
Electric Switch Lamp/Electric-Light Switch Light
Electric Switch
Keosene Switch Lamp
Lamp, Switch; Electric
Oil-Burning Switch Lamps
Oil-Lamp
Oil-Lighted Switch Lamp
Oil Switch Lamp
Reflecting Switch Lamp/Reflex Switch Lamp/Reflex Lens Switch Lamp
Switch Dwarf Signal
Switch Indicator
Switch Lamp
Switch Light
Switch Signal
Switch Stands

2) Points Indicators
Catch Point Disc/Points Disc
Catch Point Indicator
Mechanical Points Indicator: Arrow Type; Disc Type Arrow Type

Disc Type
Points Indicator
Points Indicator - Arrow Type
3) Route Indicators
Mechanical Route Indicator
Morse & Berry Type Route Indicator
Moving Slide Type - Route Indicator
4) Other Morphological Signal Terms
Clockwork Automatic Block Signal
Clockwork Enclosed Disc Type Electric Automatic Signal
Clockwork Signal Exposed Disc Form & Automatic Block Signal
Gasset & Fisher Clockwork Exposed Banner Type of Automatic Block Signal
Disc Shunt
Disc Shunting
Floodlit Disc Shunting Signal
Home & Distant Banjo Type of Disc Signal
d) Other Signals
1) Crossbar Signals
Cross Bar & Lamp
Crossbar Signal
Double Discs & Cross Bar
Flap Signal
Tilting Crossbar Signal/Tilting (Crossbar) Signal
2) Flag Signals
Automatic Flagman
Fantail Signal
Flag
Kite Signal
Flag Signal
General Note
Pivoted Flag
3) Lighted Signs & Boards
General Note
Caution Board

End of Shunt Sign
Indication Board
Lineside Board
Marks & Markers for Japan [Selected Entries]
Shunting Limits Board
Temporary Speed-Reduction Board
Train-Order Board
4) Track Indicators
General Note
Block Indicator
Motor Car Indicator
Switch Indicators
Track Car Indicators
Track Occupancy Indicators
Track Indicators
Track Side Warning Indicators
Train Approach Indicators
5) Miscellaneous Signals
Ball
Ball Signal
Basket Signal
Gate Signal
Ground Signal
Highball Signal/High-Ball Signal
Indicator Lantern
Lamp
Multiple-Ball Signal
Pot Signal
Smash/Smashboard Signal
Tiltboard Signal
Trip's Improved Railway Signal
Two-Colour Oil Lamp

Notes

New Terms: Solomon 2003: All-Lighted Signals

Colorlight
Color Light
Color-Light Signaling
Multiple-Head Color-Light Signals
US&S Color-Lights
Safetrain (3-Light) Color-Light Signals
Color-Light Automatic Block Signals/Color-Light Block Signals
Color Light Interlocking & ABS Signal
GRS Color-Light
Horizontal Color-Light Signal
Single-Head Color-Light
Type-D Color-Light
Triangular Position-Color-Light
Raco Color-Light
Horizontally Oriented Color-Light Signal
Color-Light with Triangular Light Pattern
Triangular-Pattern Color-Light/Triangular-Pattern Color-Light Signal
3-Head Color-Light Signal
GRS Triangular Color-Light/GRS Triangular-Pattern Color-Light Signal

Position-Light System
Position Light/Position-Light
Dwarf Position Light

Single-Head US&S
Two-Head Searchlight Signal
Twin-Head Searchlight Signal
Twin Head Searchlight Signal

Right-Hand Searchlight
Long-Range Searchlight
Short-range Signal
Hall Searchlight

GRS Searchlight

Cab-Signaling
Cab Signal Indicator
Two-Aspect Continuous Inductive Cab Signal
Advance Cab Signal
Four-Aspect Cab Signal
ACSES (Advanced Civil Speed Enforcement System Cab Signal
Two-Aspect Cab Signaling
Four-Aspect System [Cab]
Two-Aspect, Three-Aspect Cab Signal System
Four-Aspect Cab Signaling

New Terms: Solomon 2003: Partially-Lighted

Visual Semaphore Signals
Automatic Block Semaphores
Fixed Semaphores
Three-Position Slotted-Mast Semaphores
All-Electric Semaphores
Semaphore Position-Type Signals
Base-of-Mast Mechanism Semaphore
Top-of-Mast Mechanism Semaphore
3-Blade Semaphore/3-Blade U-Q Semaphore
2- & 3- Head Semaphore
L Q Block Semaphore
US&S Style-B L-Q Block Signal
Electropneumatic Semaphore
Twin-Arm L-Q Semaphore
Style-B Signal
U-Q Signal
Left-Handed Upper-Quadrant Semaphore
Upper-Quadrant Semaphore
Single-Arm U-Q Semaphore
3-Position U-Q Semaphore

3-Position L-Q Semaphore
2-Position L-Q Semaphore
L-Q All-Electric Semaphores
5-Arm L-Q Semaphore
Mechanical L-Q Semaphore
Electropneumatic L-Q Semaphore
Left-Handed Semaphore
Pneumatic Block Semaphore
3-Position U Q Type
Model 2A UQ Semaphore
L Q Block Semaphore
One-Blade L-Q Semaphores
US & S Style-S Semaphore
B "
" Lighted-Quadrant Semaphore
T - "
S Upper-Quadrant Semphore
B Lower-Quadrant -
S Upper-Quadrant -
B Signal
B LQ "
- Lower-Qudrant "
- " Signal
T-2 - -
T Upper-Quadrant -
T UQ Signal "
B LQ Block Signal

GRS Modal 2A Semaphore
Upper-Quadrant Signal
Lower-Quadrant
Dwarf Signal

Hall Style-K Upper Quadrant Semaphore
Lower-Quadrant "

Ball
Multiple-Ball Signal
Banner
Banner Clockwork Type

Flag
Tiltboard Signal
Banjo Signal

Automatic Enclosed Disc Signal
Hall Disc Signal
Hall Disc
Enclosed Disc Signal
Hall's Enclosed Disc
Hall's
Hall Signals

Mechanical Signal Board

AAR 1953
Pneumatic Power Signals

Part J:
Non-visible Signals
Tumble-Arm Semaphore

Differences Between Index and Database:
All-lighted

Colour-Light Signals Multi-Aspect-Vertical in Text but omitted from Index; included in this study

Electric Automatic Colour-Light Signals in Index but Signalling in Text; the latter is in Text and in this study
Color-Light Type Signal (SR) in Index but () omitted from Text.
Searchlight Type Colour-light Signals in Text joined by non-hyphen version; that is included in this study .
Searchlight Type of Single-lens Color Light in Index but Colour in Text.
Dwarft Searchlight Signal has Type not Signal in Text; that is the correct form.
Colorlight High Signal ... has Color Light in Text; that is also followed here.
Dwarf Colourlight Shunt Signal in Index has Shunting in Text; Index should be Shunting.
Side Light (Back Light) in Index but Text has Back only; this study has that form.
Flashing Signals (Signals) in Index but Flashing Lights in Text which is correct.
Position Signal Signal individual entry in Index but not in Text; this study included that entry.
Cab-Signalling joined by Cab-Signaling in Text but not in Index; this study has both.
Continuous Cab Signaling System in Index contrasts with Signal in Text; that is followed in this study.
Conductive Inductive Cab Signal in Index has Continuous Inductive Cab Signal in Text; Continuous is the correct word.
Four-Indication Cab Signal System in Text but omitted from Index; included in in this study.

Differences Between Index and Text:
Partially-Lighted

Dwarf Type Signal in Text only; added in this study
LQ Electro-Pneumatic Semaphore not in Text. Omitted in this study.
LQ Signal Electric Operated duplicated in Index; on entry omitted,
Pneumatic Semaphore in Text added to this study
Semaphore-Left of Mast and -Right of Mast lack hyphens in Index but included in Text and in this study.
Three-Position Dwarf Signal in Index lacks Signal in Text; omitted in this study.
Pattern Ground without Disc in Index but added in Text; included here.
Banner Box Signal duplicated in Index; on entry omitted.

Banner Clockwork Signal in Text but not in Index. Included in this study.
Points Disc included in Text but not in Index; it is now added here.

Differences Between Parts F/H and Database:
All-lighted

The classifications of the modal studies present three main components: Trackside, Cab and Dwarf. Dwarf signals are a main component in classification but they are very subordinate in the Database. Basic components are largely absent in the Database while various types of mechanisms (Color light, etc.) are in a dominant role. Some of the differences are explained by the nature of classifications in contrast to the database format.

Alphanumeric, Graphic and Geometric forms are major subdivisions in theDatabase but underplayed in classifications. Some terms in the classifications were coined by the compiler and serve as category designations but they are not found in the Database. Such terms include Colour-Light: Multiple lens; Color-Light: Searchlight lens and Symbol signals. The classifications include subdivisions of signals based on the appearance of the signal. This does not result in recognized names and hence are omitted in the database.

Partially-Lighted

Correlation between classification and the Database are substantial for some areas of Transportation-Markings (e.g., numerous marine and tcd forms). However, the problem of correlation for railroad signs is also present with railroad signals. International structures and organizations are limited for railroad aids, and the building up of an abstract structure for diverse terms in a taxonomy did not not mesh well with the structure of the database where there are many terms within a simple structure.

The Database has two major components: Semaphores and Signal Boards, Discs & Other Forms while the classifications have a structure of Trackside Signals- Semaphores/Signal Boards/Dwarf Signals & Rotating Signals/Dwarf Revolving Signals/Railway Signals-Single Forms, Lighted Signs. Dwarfs are very

important in classification but very subordinate in the Database. Semaphores in the classification are based on the character of blade and spectacle which resulted in only limited terms.

Some specific terms as well as category designations are omitted from the Database. These include pillar-disc, minature graphic symbol indicators, and graphic symbols. The arrangement of single forms, lighted signs in classification contrasts with the lighted signs and boards of the Database.

3C Unlighted Visual Device
3C1 Unlighted Fixed Devices with Constant Messages
General Note
a) Location Signs
Location Signs
Corporation or Other Political Subdivision Signs
Mile Post Signs
Standard Right of Way Signs
Subdivision Signs
Tresspass Sign
Tresspass--Right of Way Sign/Tresspass-Bridge/Tresspass-Crossing Signs
Railroad Property - Tresspassing Forbidden Under Penalty
Danger Do Not Tresspass on the Railroad
Valuation Section Sign
b) Transportation Signs
1) Speed Control Signs
(a) Speed Control & Restriction Signs
GN I, II
Advance-Warning Sign/Advance Warning Sign
Reduce Speed Sign
Resume Speed Sign
Retro-Reflective (Road Traffic Type) PSR Sign
Speed Control Signs - Temporary & Permanent
Speed Limit - Permanent Sign/Speed Limit - Temporary Sign
Speed
Slow
Resume
Temporary Reduce, Slow & Resume Speed Signs
Reduce Speed Sign
Slow Sign
Resume Speed Sign
(b) UAR Speed Signals (=Signs)
Speed Restriction Signals
Start of Speed Restriction Signal

End of Speed Restriction Signal
Speed Restriction Warning Signal

(c) Speed Zone Signs
Speed Zone Sign
Restricting Sign
Resume Speed Sign
Indicator
Fixed Indicator
Sign for Day Running
Warning Sign/Commencement Sign/Termination
Arrows
Line Speed Indicator
Speed Indicator
Temporary Speed Restriction Indicator
"Z" Board/"R" Board
Speed Restriction Signs - Temporary
Speed Restriction Sign
Senal Indicadora de Velocidad Limitada/De Fin Senal
Indicadaro de Velocidad

(d) Other Speed Signs
Curve Speed Signs
Permanent Slow Speed Sign
Temporary Slow & Release
Proceed Prepared to Stop Sign
Zone Speed Sign

2) Location Signs

(a) Advance Location Signs
General Note
Railway Grade Crossing Signs
Drawbridge Signs
Tunnel Signs
Junction Signs
Rock Slide Signs
Snow Slide Signs
Station Signs

Station Name Signs

(b) Limit & Location Signs
General Note
Yard Limit Signs
Switching Limit Signs
Signal Territory Limit Signs
Station Location Signs
Derail Location Signs
Track Capacities Signs
Water Station Limit Signs
Fuel Station Limit Signs
Cinder Station Limit Sign
Blind Siding Signs
Cut Section Sign

(c) Territory Limits Signs
Territory Limit Signs
General Note
Begin CTC Sign/End CTC Sign
CTC
Begin
End
Begin Cab Signal/Territory/End Cab Signal Territory
Begin TCS Sign/End TCS Sign
End of Signal Territory
End of Block Sign/Block-Limit Sign
End of Track Circuit Sign
Automatic Block Signs
Start Automatic Block Signs
End Automatic Block Signs
Remote Control Signs
Begin Remote Control Signs
End Remote Control Signs
Beginning of Double Track Sign/End of Double Track Sign/Double Track
Begins/Double Track Ends

Begin Rules .../End Rules ...
Approach Block Limit Sign/ABL Sign

c) Maintenance of Way Signs
General Note
Alinement Sign or Markers
Bridge Sign/Bridge Number Signs
Curve & Elevation Signs
Elevation Markers
End of Shunt Sign
Flanger Sign
Maintenance Limits Sign
Roadway Structures Sign
Snowplow Sign
Raise Snowplow Sign
Lower Snowplow Sign
Token Block Working Sign

d) Safety Signs
General Note
Electrical Hazard Sign
Fire Hazard Sign
Highway Grade Crossing Sign
Barricade Sign
Highway & Barricade Sign
Power-Operated Switch Sign
Restricted Clearance Sign
Warning No Clearance for Man on Side or Top of Car Sign
No Clearance Sign*

e) Marks & Markers
Markers
Marker (Board)
Alinement Marker
Auxiliary Marker
"C" Markers/"S" Markers
General Note
"C" Marker

"S" Marker
Clearance Mark
Diamond Shaped Marker
Distance Markers
Elevation Markers
Fixed Markers
Landmark
Lineside Marker
Marks & Markers for Japan
General Note
Repeater Signal
Train Stop Sign Marker/Car Stop Marker
Shunting Signal Marker & Shunting Sign Marker
Switch Target
Sudden Release Shunting Sign Mark
Trolley Wire Dead Section Indicator
Trolley Wire Electric Source Sign Marker
Route Electric Source Sign Marker
Once Stop Sign Marker
Clearance Post
Whistle Sign Marker
Buffer Stop Indicator
Marks:
Route Identification Mark
Slow Speed Release Mark
Signal Aspect Confirmation Position Mark
Power Drive Mark
Coasting Mark -- AC & DC
Signal Alarm Mark
Station Approach Mark
Tablet Carrying Mark
Train Stop Position Mark
Electric Train Section Mark
Monument Marker
Reflective Marker Board

High Speed Marker Board
Selection Entrance Marker
Signal Marker Board
Spring Switch Marker/Spring Switch Sign
Wayside Marker
Wing Markers

f) Boards & Posts

General Note
Advance Warning Board
Baak
Caution Board
Countdown Marker Board
Flag Board/Metal Flags
Indicating Board
Indication Board
Lineside Board
Marker Board
Mechanical Signal Board*
Mile Board
Nameboard
Notice-Board
Number Board
Order Board
Permanent Speed Restriction Board/Permanent Speed-Restriction Board
Permanent Warning Board
"R" Board/"Z" Board
Radio Channel Change Board/Radio Channel Indicator
Reflectorized Distant Board/Distant Board/Fixed Board
Resume-Speed Board (Temporary)/Resume-Speed Board (Permanent)
Shunting Limits Board
Signal Board
Slow Board
Speed Board

Start of Section Board/End of Section Board
End of Section Marker Board
Sighting Board
Signal Warning Board
Starting Signal Notice Board
Station Limit Board
Station-Name Board
Train Clear of Passing Loop Indicator/Advanced Starting Loop Clear Signal
AWS Cancelling Indicator
End of Token Section Proceed if Platform Clear Board
Temporary Warning Board
Temporary Outer Speed Board/Temporary Inner Speed Board/All Trains Stop Boad
Train Order Board
Terminating Board
Stop Board
Temporary Speed-Reduction Board
Warning Board
Watering Board
Whistle Board
Yard Limit Board
"Y" Board
Block Posts
Clearance Post
Curve & Elevation (Post)
Elevation Posts/Full Elevation Posts/Zero Elevation Posts
Gradient Posts
Marker Post*
Mile Posts
Permanent Whistle Post/Temporary Whistle Post
Property Line Posts/Property Posts
Section Posts/Sub-section Posts
Signposts
Whistle Posts

g) Plates & Flags
"A" Plate
"F" Plate/Nf Plate
Identification Plate
Identifying Plate
Track Circuits
Fireman's Call Plunger Plate
Telephone Plate
Identity Plate
Letter Plate
Marker Plate
Name Plate/Plate, Name
Plate, Number/Number Plate
Signal Background Plate
Signal Identification Plate
Signal Number Plate
Station Nameplate
"T" Plate
Flags
General Note
Flags*
Flagboards
Metal Flags
Flag Signals*
Blue Flag Devices
Power Blue Flag
Blue Flag Detail
Derail Blue Flag
Chock Flag

h) Other Devices
1) Overarching Terms
General Note
Trackside Signs
Lineside Signs
Fixed Signs

Roadway Signs
Sign
Signpost
2) Blue Flags
General Note
Derail
Stop
Stop (Portable)
Camp Cars
Alto
Danger Men Working on This Truck
Danger Tank Car Connected
Stop Tank Car Connected
3) Electric Traction Signs
4) Miscellaneous Signs
Approach Signs
Checquered Signs
Number Plate
Signal-Note-In-Use Sign
Revolving Stop Sign*
Stop Sign*

3C2 Targets
General Notes I, II, III, Iv
a) Overarching Terms
Target
Switch Stand Target
Switch Target
Illuminated Switch Target
b) Morphological-related Terms
General Note
1) Shape Targets
General Note
Arrow-shaped Vanes (9 Forms)
Obround-shaped Vanes (3 Forms)

Rectangle-shaped Vanes (4 Forms)
Obround Vanes (4 Forms)
Other Shapes (6 Forms)

2) Color & Position Targets
General Note

3) Terms Relating to Railroad Function
Blind Target
Main Track Switch Target
Siding Yard Switch Target
Siding Derail Target/Siding Derail Target
Yard Switch Stand

c) Other Targets
Day Targets
Main Line Switch Signals
Target Stands
Switch Target Reflector Type/Reflectorized Switch Target/Reflector Target
Targets Whose Titles refer to Height:
Low Target
Low Revolving Target
Intermediate Target
High Switch Target
High Target

d) Switch Stands
General Note
Automatic Safety Lock Switch Stand
Automatic Safety Switch Stand
Automatic Stand
Automatic Switch Stands
Column-Throw Stand
Derail Switch Stand/Derail Stand
Double Stand
Dwarf Stand
Enclosed Geared Type Parallel Throw Switch Stand
Gearless Switch Stand

Ground Throw Stand
Ground-Throw Switch Stand/Ground Throw Switch Stand
Hasty Triple Stand
High Banner Two Tie Switch Stand/Low Banner Two Tie Switch Stand
High Switch Stand
Hub Safety Automatic Switch Stand
Intermediate Stand
Low Stand
Low Switch Stand
Main Line Safety Switch Stand/Malinline Safety Switch Stand
Main Line Switch Stand
Parallel-Throw Switch Stand
Stone Drum Switch Stand
Pony Stand
Positive-Action Switch Stand
Steelton Switch Stand
Switch Stand, Parallel Throw
Three-In-One Automatic Switch Stand

Note

New Terms

Flag, Solomon 2003
Flag Signal, Solomon
No Clearance Sign, CRIP 1977
Marker Post, Solomon
Mechanical Signal Board, Solomon
Revolving Stop Sign, Solomon
Stop Sign, Solomon

Differences Between Database Indexes & Text: Signs

Corporate in Index but Corporation in Text; Index changed to Corporation
Temporary Reduce ...: Both Index and Text altered.
UAR entry garbled in Index; now changed to conform to source.
Line Speed Indicator duplicated in Text; delete one entry.
Line Indicator in Index: delete.
Speed Indicator: add to both Index and Text. [New Term in a sense]
End of Track Circuit Sign in text: add to Index
Warning No Clearance: add to text
Nameboard: two words in text; change to one
Resume-speed ...: add to text
Speed Restriction Sign: add to index
Advance ... To be separate entry in both Index and Text
Block Posts in text; index changed to two words.
Stop Tank Car Connected Sign: add to index

Note: Targets

Targets are unlighted aids consisting of one or two vanes. Often times they are joined to a switch lamp. Targets are in themselves an unlighted signal type aid (it has more than one message. Switch lamps are partly-lighted whether a target is attached or not. The Classifications treated Targets as both unlighted and partly-lighted aid. The Database placed unlighted fixed aids together then joined Targets to a composite group consisting of unlighted signals, acoustical signals, radio signals. The topic of Target needs to be reformulated with the bulk of classification and database within unlighted aids. With Switch lamps as partly-lighted and cross-references between the two subjects. That reformulation is followed at least some extent in this study. The core materials of targets are similar in the various studies though notably different in configurations. A third element is the Switch stand. These are not included in the classifications. They are included in the Database since the switch stand is the structure to which target and or switch lamp is attached. Occasionally the term stand becomae an element ofthe name of the aid.

Difference Between Index and Text of Database:

Hub Safety Automatic Switch Stand is listed in text but not in index; it is now added.

Differences Between Classifications & Database:

There has been considerable trouble in correlating signs in classifications with the treatment in the Database. The following notes are an early attempt to come to grips with that problem. They are perhaps thinking out loud, or stream of consciousness more than notes that can be used in the study.

DB and E/H/B: very difficult to correlate both categories of signs and often specific forms of signs. Some of the problem may be the fact that European signs are often speed-related and manifest many forms. While US signs are much less often speed in nature. Though that problem is found with both DB and classifications. The Classifications themselves may be part of the problem. The variations give speed forms but no non-speed sign forms. The Classifications attempt but only attempted to bring together diverse types in coherent groups. But those attempts are often flawed and do not cohere with group names in the DB in not a few instances. At times it is not all that easy to say what a classification category consists of. And even more often it is not that easy to correlate DB categories with Classification categories.

Signals are nearly universal with various classifications and categorizations. One can build up a framework with the many forms of signals and their existing. But signs and related devices are less universal and manifest considerable variation. I may have errored in trying to construct an coherent and overarching system in which to place signs. I should have looked for the structure in whatever signs presented themselves and sought the order there even if partial and uncertain. A case in point: the Classifications speak of Sign and Signal ID & Signal Function Signs. But in railway practice the common term would have been plate. Plates rather than signs denote posting of symbolic messages on signal masts. The alternate term is one of a number of plate-type aids and forms a segment in itself. Plate needs to become part of the Classification. And the use of

sign needs to be dropped.

In summary ,

Database and Classification groups can only be partially correlated.

Morphology/physical terms are often run together in both Database and Classification with too little sorting out and explanation of how terms relate and to what degree.

No general international categories though some regional tendencies may occassionally exist.

DB is intended to expand and draw out entries into a broad comprehensive panorama. While the Classification pulls distinct entries into groupings which are subsumed into further groups. Taxonomy and Holarchy undergird that exercise. This study as a combination classification/ indexes bridges the two approaches.

Part H, 2nd ed, partly improves the degree of correlation.

Which are the worst cases of non-correlation in the DB and Class.?

Correlating Parts F and H (also Parts B and J):

Approach... (Station, Yard, Crossing, Bridge & Whistle Posts (H has 5320)	=	Advance Location? Station, Crossing, Bridge But Whistle Posts & Yards?
5311 Station, Yard, Track & Political Units (H has 5321)	=	Limit & Location Signs Track, Yard, Station may correlate but Political?
5312 Location (= Whistle Post) (H has 5322)	=	Whistle Posts in Boards & Posts
5313 Sign & Signal ID** & Signal Function (H has 5323)	=	Plates- ID, Number

5314 Stop Boards (H has 5324)	=	In Board & Posts
5315 Section & Block (H has 5325)	=	Territory Limits Signs
5316 Electric Traction Signs (H has 5326)	=	Electric Traction Signs
5317 Limit & Restriction Signs (H does not have this)	=	?
5327 (H) Safety Signs	=	Safety Signs
5328 (H) Maintenance of Way Signs	=	Maintenance of Way Signs

** Plate should have been used not Sign. Non-signal aids in railway practice lack overall structure (even more than signals). Earlier T-M attempted to build a framework for various disconnected pieces. However, that framework should have drawn its shape from the various bits and pieces of signs and organization rather than impose an artificial structure on the fragments. A good example is applying sign to what should have been termed plates.

3D Acoustical & Radio Signals

3D1 Acoustical Signals

a) General Note & Overarching Terms
- Acoustic or Audible Signal
- Audible Danger Signal
- Audible Signalling Devices
- Audible Warning Systems

b) Explosive Signals
- Audible Signal [=Explosive; possible OA term]
- Banger
- Clayton's Automatic Detonator Placer
- Clayton Fogging Machine
- Detonating Fog Signal
- Detonating Signal
- Detonator
- Detonator Machine
- Detonator Placer
- Detonator Signal
- Duplex Fog Signal
- Fog
- Fog Detonator
- Fog Repeator
- Fog Signal [Also possible OA]
- Fogger
- Fogging Machine
- Torpedo
- Torpedo Signal

c) Level/Grade Crossing Sound Signals
- Audible Automatic Warning Devices
- Audible Warning Devices*
- Audible-Pedestrian Crossing
- Automatic Bell
- Bell
- Bell, Gong

- Bell, Single Stroke
- Bell, Vibrating
- Crossing Alarms
- Crossing Bells
- Double Gong Highway Crossing Bell
- Electrically Actuated Bell*
- Electronic Bell/Electronic Warning Bell
- Enclosed Crossing Bell
  - Iron Case, Enclosed Crossing Bell
  - Enclosed Water Tight, Low & High Voltage Highway Crossing Bell
- Enclosed Type Gong
- Grade Crossing Alarm
- Highway Crossing Bell/Bell, Highway Crossing
- Highway Crossing Bell-Electronic/Highway Crossing Bell-Electro-Mechanical
- Highway Crossing Signal
- Locomotive Type Crossing Bell
- Motor Driven Locomotive Type Bell*
- Pedestrian Crossing Bells*
- Railway Crossing Bells*
- Skeleton Bell
- Sound-Bell/Sound Bell
- Vibrating Bell*
- Warning Bell*
- Whistle Signal*

d) Cab & Train Control Sound Signals
- General Note
- Cab Signal, Audible
- Cab Signal-Sound
- Audible Cab Signal*/Audible Cab-Signal*
- Audible Cab Signalling/Audible-Cab Signalling
- Audible Cab Indicator/Indicator, Cab; Audible
- Audible Frequency Cab Signal*
- Audible Indicator
- Audible Signal

Bell & Siren Unit
Cab Alarm
Cab Indicator
Cab Whistle
Code Continuous Cab Signal with Whistle & Acknowledger
Indicator, Cab; Audible
Klaxon
Reliostop
Warning Hooter
Warning Whistle
Whistle Signals

e) Other Sound Signals
All-Weather Fuzees
Bell [Switch Indicator]
Fog Gong
Fusees
Non-optical Signals [=Fog Signalling Devices]
Rail Sound Signals
Siding Bell Box*
Track Crew Warning Signals [Sound dimension]
Track Indicators [Sound dimension present]

3D2 Radio Signals

Note: Database presents a listing of terms without subdivisions. This coverage divides terms into overarching, radio token, and other forms. This creates a diverse grouping for limited terms yet that arrangement is necessary. ETCS (European Train Control System) is considered in Systems. But several terms are signal or signal-related in nature.

a) Overarching Terms
Electronic Signalling
Radio Signalling
Radio/Electronic Token

Electronic Token
Electronic Token System
Radio-Based Token System
Radio Block
Radio Electronic Token Block (RETB)
Radio Electronic Token System
Radio Token Block
Radio Token Block System
Radio Token Equipment
Radio Tokenless Block
RETB System
Token Block

b) Satellite Systems
GPS/NAVSTAR GPS/GPS Technology
Sat-Guidance System/Sat-Based Guidance System

c) Other Radio Signals
Beacon/Euro-balise Beacon
Euro-Radio
Radio-Shunting
Raliophone
Wireless Signal System

Note

The Database placed fixed unlighted forms together, and then placed signal forms whether visual, acoustical or radio together. While a case might be made for that approach it can also be viewed as idiosyncratic. Targets are now placed with other visual forms and the small sections of acoustical and radio are placed together in an uneasy alliance of not-visual forms.

New Terms:

Audible Warning Devices, Solomon 2003
Electrically Actuated Bell

Warning Bell

Vibrating Bell, ARSPAP-D

Audible Frequency Cab Signal, Bisset 1990

Audible Cab Signal, Ellis 1966

Audible Cab-Signal, Nock 1978

Siding Bell Box, Hall Sign & Signal

Pedestrian Crossing Bell, WRRS
Motor Driven Locomotive Type Bell

Track Crew Warning Signals, Part H

Rail Sound Signals, Part J
Railway Crossing Bells

Whistle Signal, UAR

Note

The Databased placed all non level/grade crossing and cab sound signals together in a heading of Explosive Signals. However, some forms were not of an explosive nature. Those signals are now placed in an Other Forms category.

Differences between Index and Text of Database

Duplex in index has a fuller name in text: Duplex Fog Signal.

Differences between Parts F and H and Database:

Thee are few sound terms in Parts F and H. Part H includes Track Crew Warning

Signals which is absent from the Database.

3E Level/Grade Crossings Signs, Signals, Markers & Other Forms

General Note

3E1 Integrative LC/GC Terms
- Automatic Safety Installations for Level Crossings
- Automatic Controlled Level-Crossing Protection
  - Bells
  - Flashing Lights
- Automatic Level Crossing Protection
- Automatic Signal Devices
- Automatic Warning System
- Conventional Track Circuit-Operated Level Crossing Approach Warning System
- Crossing Protection
- Crossing Warning Device
- Four-Quadrant Grade-Crossing Gates*
- Grade Crossing Warning Systems
- Highway Crossing Protection
- Highway-Railroad Crossing Protection
- Level Crossing (Review)
- MWL Crossing
- Highway Crossing Protection
  - Automatic Bells
  - Flashlight
  - Gates
  - Wig-wag
- Highway Crossing Signal
  - Crossing Sign
  - Locomotive Type of Bell
  - Wigwag Signal
- Highway Crossing Warnings & Controls

Cantilever
Gates
Lamps
Highway Grade Crossing
Signs
Signals
System
Warning Device
Power-Worked MCB
Audible Warning Devices
Traffic Lights
Barriers
Railway Crossing Safety Aids*
Seismic Based Train Actuated Approach Warning at Level Crossing
The Orion - 300 Level Crossing Approach Warning Systems

3E2 Lighted LC/GC Signals

Advance Warning Signal (Highway Crossing)
AGA Highway Danger Signal
Automatic Flashing Lights*
Barrow Crossing Warning Indicator
Cantilever Signal
Color-Light Highway Signal
Crossing Signal
Crossing System*
Flashing-Lights*
Flashing Lights, Automatic Gates & Ringing Bell*
Flashing-Light Crossing*
Flashing Light Signals/Flashing-Light Signal*
Flashing Light Type
Flashing Signals & Crossing Gates*
Grade-Crossing Flashers & Crossbucks*
Grade Crossing Signal
Grade-Crossing Protection*
Grade-Crossing Warning*
Highway Approach Signal

Highway Crossing Signal
Hoeschon Crossing Signal
Miniature Warning Lights
Miniature R/G Warning Lights
Railroad/Highway Grade-Crossing Protection*
Railroad-Railroad Grade Crossing Signal
Railway Grade-Crossing Signals*
Highway Signals
Level Crossing-Flashing Light Signals
Level Crossing Signals
Level Crossing with Flashing Light Signals
Level Crossing with Signal System
Signals for Tramway Level Crossing
Pre-Warning Signals
Tram Crossing Signals
Visible Warning Signals
Visual Grade-Crossing Warning*
Wig Wag
Wig Wag Crossing Signal
Wig Wag Grade-Crossing Protection*
Wig Wag Systems*
Wig Wag Type

3E3 Barriers & Gates

a) Barriers, Full Gates, & Gates

Automatic Gates
Automatic Lifting Barriers
Barriers
Barrier Type Protection
Boom Gates
CCTV Monitored Remote Barrier Crossing
Crossing Gates
Electric Operated Lifting Barriers
Electro-Hydraulic Pedestrian Barrier
Full Barrier
Grade-Crossing Gates*

Level Automatic Barriers
Level Automatic Open Crossing
Level Crossing Barrier
Level Crossing Gates
Level Crossing with Automatic Barrier
Level Crossing with Full Barrier
Lifting Barrier
Manned Gated Crossing
Manned Barriers
Manned Barriers Crossing
MCB/Local
MCB/Remote
MCB/CCTV
TOB
Manually Controlled Barriers
MCB/CCTV
On Call Barrier Crossing
Short-Arm Gates
TMO (Trainman Operated [Barrier])
Trainman-Operated Barrier (TOB)
Wicket Gate

b) Half Barriers & Gates
AHB Crossings
Automatic Half Arm Barrier Installation
Automatic Half Barrier
Automatic Half Barrier Crossing (AHB)
Automatic Half Barrier Locally Monitored (ABCL)
Automatic Level Crossing & Half Gate
Double Half Barrier & Full Barrier Crossing
Half Barrier: Double Half Barriers & Single Half Barrier
Level Automatic Half Barriers
Level Crossing Half Barriers

3E4 Sound Signals
Audible-Pedestrian Crossings
Audible Warning Devices*

Bell, Gong, Audible Warning
Crossing Alarms
Double Gong Highway Bell
Electrically Actuated Bell*
Electronic Warning Bells
Enclosed Crossing Bells
Enclosed Type Gong
Grade Crossing Alarm
Locomotive Type of Crossing Bell
Highway Crossing Alarm
Highway Crossing Bell
Highway Crossing Bell-Electronic
Highway Grade Crossing Warning Device
Hoeschen Bell System
Rail Sound Signals*
Railway Crossing Bells*
Skeleton Bell
Vibrating Bell
Warning Bell*

3E5 Signs
Auxiliary Sign
Close Up Road Warning Sign [& with Flashinglight]
Crossing Signs
Crossbucks*
Crossbucks (Crossbones)*
Crossbuck Signs
Distant Road Warning Sign
Gates Not Working Sign
Grade-Crossing Sign*/Grade Crossing Sign*
Highway & Barricades Sign
Highway Crossing Sign
Highway Grade Crossing Sign
Illuminated Sign
Level Crossing Halt Board
Level Crossing - Sign Board

Railroad Crossing Sign: Highway, At the Crossing, Advance Warning Sign (& with Flashing Light)
Railroad Grade Crossing Targets
Road Signs at Level Crossing
Reflector Buttons
Revolving Stop Sign*/Revolving-Stop Sign*
St Andrew's Cross
St George's Advance Warning Board
Second Train Coming Sign
Signs (Crossing)
Warning Signs for Level Crossing

3E6 Open Crossing
Accomodation Crossing
Automatic Open Crossing Locally Monitored (AOCL)
Automatic Open Crossing Remotely Monitored (AOCR)
Automatic Open Level Crossing
Open Crossing (OC)
Open Crossing with No Controls

Notes

New Terms

Flashing-Light Crossing Signal, Solomon 2003
Crossing System, Solomon
Automatic Flashing Lights, Solomon
Grade-Crossing Warning, Solomon
Grade-Crossing Protection, Solomon
Flashing-Lights, Solomon
Flashing-Lights Crossing, Solomon
Flashing Signals & Crossing Gates, Solomon
Flashing Lights, Automatic Gates & Ringing Bell, Solomon
Four-Quadrant Grade-Crossing Gates, Solomon
Visual Grade-Crossing Warning, Solomon
Wigwag Signal, Solomon

Grade Crossing Flashers & Crossbucks
Grade-Crossing Gates, Solomon
Audible Warning Devices, Solomon
Warning Bell, Solomon
Bell, Solomon
Electrically Actuated Bell, Solomon
Crossbucks, Solomon
Crossbucks (Crossbones), Solomon
Grade-Crossing Sign, Solomon
Grade Crossing Sign, Solomon
Railway Grade Crossing Signs
Railway Grade Crossing System, Solomon
Revolving Stop Sign, Solomon
Revolving-Stop Sign, Solomon

Rail Sound Signals, Part J
Railway Crossing Safety Aids, Part J

Differences Between Index and Text of Database

Automatic Signal Devices in text; omitted from index; add
Conventional Track Circuit ... Index omits Approach before Warning but included in text; add to index
AGA Two-color Highway Danger Signal in text; add to index.
Locomotive Type Crossing Bell in text; add to index
Level Crossing in index: review (no source in text for term)
Signals for Tramway Level Crossing: review in M & H

Differences Between Parts F and H and Database:

Neither Part F or Part H gives substantial attention to Level/Grade Crossing devices. Part H includes LC/GC Signals [Crossing Bell]. While Part F omits this

category. TCD studies also include this topic which possibly reduces the need for coverage here. However, the Database has given considerable attention to the topic.

3F Staff & Ticket, Tablet, Token, Train Order & Time Interval Signals

3F1 Staff

Absolute Staff System/Absolute Staff Instrument
Annett's Key
Automatic Electric Staff Instruments
Automatic Staff Exchanging Apparatus/Automatic Exchange Equipment/Automatic Tablet Exchange Equiipment
Electric Staff
Electric Train Staff
Electric Staff Instrument
Electric Staff Block System
Electric Staff System
Electric Staff Working
Electric Train Staff & Ticket System
Electric Train Staff System
Intermediate Siding Junction Instrument
Large Electric Staff
O.E.S. Staff
One Train Working
Permissive Staff/Permissive Attachment
Pusher Attachment
Staff
Staff & Ticket Working
Staff Catcher
Staff Crane/Crane, Staff
Staff Manual Block System
Staff Pouches
Staff System
Subsidiary Electric Staff Working
Train Staff/Train-Staff

Train Staff System/Train-Staff System
W & T Electric Staff System
Webb & Thompson Electric Staff
Webb & Thompson Electric Staff Instrument
Wooden Staff/Wooden Train Staff

3F2 Staff & Tickets

Paper Ticket Method
Staff & Ticket/Staff-&-Ticket
Staff & Ticket System
Ticket System
Train Staff & Ticket System
Train Staff Ticket
Wooden Train Staff & Paper Ticket Method

3F3 Tokens

Automatic Token Exchange
Ball Token/Ball-Token
Ball Token Type
Electric Token
Electric Token Apparatus
Electric Token Instrument
Electric Token Methods
Electric Token System
Electric Token System/Electric Token Block
Key Token I, II
Key Token Block System
Key Token Transfer System
Key Token Balancer
Key Token Instrument
Key Token System
Neale's Ball Token Instrument
Neale's Single Line Combined Ball Token & Block Instrument
No Signalman Remote Key Token Working/No-Signalman Remote Key Token Working
No Signalman Token Block
One Train Working

Signalman-to-Signalman Token Working
Signalman to Automatic Operated Token Working
Single Line Token Instrument
Token
Token Block System
Token Signalling
Electric Single-Line Token System
Token Type Block Instrument
Token-Forms
Token Forms-II
Main Section (Unidirectional) Token
Engineering Token
Test Token
Special Token
Van Schoor Train Token System

3F4 Tablet & Tablet & Tokens
Ball & Tablet Token Instrument
Electric Tablet/Electric Train Token
Electric Tablet Instrument
Electric Tablet System
Electric Train Tablet Method
Single Line Tablet
Tablet
Tablet Block Systems
Tablet Block Train Operation
Tablet Instrument
Tablet System
Tablet System of Working
Tyer's Key Token Instrument/Tyer's Electric Train Tablet
Tyer's Electric Train Tablet System
Tyer's #7 Table Instrument
#6 Tyer's Tablet Machine
Tyer's Tablet Instrument
Tyer's Electric Tablet System/Tyer's Tablet System
Tyers No. 12B Key Token Instrument

3F5 Tokenless Block Working
General Note
Scottish Region Tokenless Block
Tokenless Block
Tokenless Block Equipment
Tokenless Block Working/Tokenless Block System
Tokenless Block Instrument
Tokenless Block Working (Paper Ticket)

3F6 Train Order
Balloon Train Order
Banner Type Train Order Signal
Boot-Jack Type Train Order Signal
Box Type Train Order
Center-Pivoted, 2-Position Train Order Signal
Double-Arm UQ Train Order Signal
Electric Enclosed Disc Train Order Signal
Electro-Mechanical Train Order Signal
Nineteen Order
Slow Order
Telegraph Train-Order Signal
Telephone Train Order Sign
Thirty One Order
Timetable & Train Order (T & O)
Train Order Boards
Train Order/Train-Order
Train-Order Lineside Signal
Train Order Signal/Train-Order Signal
Train Order Signals of the Color Light Type
Train-Order System
Train-Order Working
Written Train Orders
Yarrington Type of Train Order Signal

3F7 Time Interval
Telegraph Block or Time-Interval System
Time Interval System/Time Interval-System

Time Interval Method
Time Interval/Time-Interval
Time Interval System of Working/Time-Interval System of Safeworking
Time Systems

3F8 Other Devices

Direct Traffic Control (DTC)
Space Interval Method
Telegraph & Ticket Method
Telegraph Message System
Telegraphic Order Method of Train Working
Telegraphic Orders
Ticket & Section Order System
Time-Code System
Timetables/Time-Tables
Time-Table Operation/Timetable Operations*
Timetable System*
Train Warrant Control (TWC)

Notes

New Terms

Timetable Operations, Solomon 2003
Timetable System, Solomon 2003
Tyers No. 12B Key Token Instrument, Kenya Railways 1982

Differences Between Index and Text

Direct Traffic Control (DTC) in text but omitted in index; now added.
Space Interval-Method lacks hypen in text.
Automatic Tablet Exchange Equipment lacks last work in text.
Train Staff Ticket in text only; now added to index.
Train Staff System/Train-Staff System duplicated in index; now deleted.
Ball Token Type mislocated in text.

Neale's Single Line ... in complete in text.
Tokenless Block Equipment not in index; now added.
Tyer's Electric Train Tablet System listed in index but not in text. It needs to be added to text. Note: A Century ... 1954 adds a hyphen.
Tyer's Key Token Instrument/Tyer's Electric Train Tablet in text but not in index; it is now added.
Tyer's Patent #7 Tablet Instrument omits "Patent" from both index and text.

Differences Between Parts F & H and Database:

Part F omits all of these devices from the classification. They are treated in an Appendix.

Part H includes basic terms of Staff, Tickets, Tokens, Tablets under the heading of Moveable Signals in the variant classification.

CHAPTER FOUR

AERO NAVAIDS

4A Overarching Terms: General, Visual & Lighted Terms

4A1 General Terms for All Aero Navigation Aids

a) Primary Terms

General Note
Aero Aids*
Aero Safety Aids*
Aero Visual Aids*
Aeronautical Navigation Aids
Navaids
Navigation Aids
Navigational Aids/Navigational Aids (Navaid)*
Navaid Systems
Navigation Aids Systems
Navigational System*
Aids
Aids to Air Navigation
Aids to Navigation
Air Navaids
Air Navigation Aids
Air Navigation Aids
Visual Aero Aids*

b) Specialized Terms

Aeronautical Aids
Aids to Aerial Navigation
Air Navigation Systems
Air Navigation & Obstruction Lighting
Aircraft Landing Aids*
Approach & Runway Light System
Electronic & Visual Air Navigational Aids (Navaids)
Ground Aids to a Contact Flight
Ground-Based Navigation Aids

Landing Aids to Navigation*
Landing & Navigation Aids
Mobile Airfield Lighting Systems
Navigation Systems
National Airspace System (NAS) Ground-to-Air (G/A) Systems [Landing sub-element]*
Portable Heliport Lighting Systems
Radio & Navigation Aids Systems
Temporary Airfield Lighting
Visual Aids for Approach & Landing

4A2 Visual Aids

General Note
Aeronautical Lighting & Other Airport Visual Aids
Airport Visual Aids/Airport Visual-Aids Systems
Airport Visual Navigational Aids Systems
All-Weather Visual Aids
Aviation Lighting
Ground Visual Aids
Landing Aerodrome & Airway Lighting
Visual Aids
Visual Aids for Airports
Visual Aids to Air Navigation
Visual Aids Systems
Visual Air Navigational Aids
Visual Ground Aids
Visual Landing Aids
Visual Landmarks
Visual Navaids
Visual Signals

4A3 Sub-Overarching Terms

General Note
AGA= Aerodrome Ground Aids
Approach & Landing System
Approach & Navigation Lights
Approach & Runway Lighting/Approach & Runway Lighting Systems

Approach & Threshold High Intensity Unidirectional Sequence-Flashing Lights
Approach, Threshold, & Runway Lights & Runway Markings
Approach, Threshold, Runway End Elevated High-Intensity Light
Approach/Threshold/Runway End Elevated Light
Approach/Threshold/Runway High Intensity Unidirectional Elevated Light
Approach/Threshold/Runway End Inset Light
Medium Intensity Approach, Threshold, Runway Edge Lighting
Miscellaneous Visual Approach Aids & Airport Beacons
Semi-Flush Approach & Threshold Lights

4A4 Overarching Terms for Lighted Aero Navigation Aids

a) Light & Lighting Aids
General Note
Light
Light System
Lighted Aids for Air Navigation
Lighted Aids
Lighting
Lighting Aids
Lighting Systems

b) Airfield & Airport Light/Lighting
Aerial Lighting*
Aero Lights*
Aerodrome Lighting Systems
Aeronautical Ground Lights
Aeronautical Ground Lighting
Air Lights
Airfield Lights
Airfield Ground Lighting
Airfield Lighting
Airfield Lighting Systems
Airport & Air Navigational Lighting & Marking Aids
Airport Ground Lighting Equipment
Airport Lights

Airport Light Products
Airport Lighting Equipment
Aviation Ground & Seadrome Lighting
Aviation Ground Lighting
Aviation Lighting
Aviation Lighting Equipment
Aviation Lighting Systems
Field-Lighting for Airports
Fixed Lights
Ground Lighting
Ground Lighting Aids
Ground Lighting to Aid Navigation
Ground-Positioning Lighting
International Lighting Systems*
Landing Lights
Lighting & Marking System
Lighting/Marking/Lighting & Marking
Marking & Lighting/Marking & Light Systems
Navigation Lighting
Night Landing & Approach Aids*
Passive Airport Lighting
Powered Lighting Systems
Signal Lights
Signal Light Equipment
Systems of Lights
Visual Traffic Control Aids

4B Beacons & Obstruction Lighting
General Note

4B1 Overarching Terms
Beacon
Beacon Aids*
General Note I, II
Aerodrome Beacon
Aeronautical Light Beacon
Air Beacon

Aviation Beacon
Beacon, High Intensity
Beacon Light
Light Beacon

4B2 Physical Apparatus

a) Method of Operation-Related Terms
Airport 26" Rotating Beacon
Flashing Beacons
Oscillating Beacon
Revolving Beacon
Rotating Beacon
Rotating Beacon for Small Airports
Rotating Electric Beacon
Rotating Light Beacon
Rotating Lights*

b) Dimension-Related Terms
General Note
10-Inch Rotating Beacon
18-Inch Beacon
24-Inch Airway Beacon
24-Inch Beacon/Twenty-Four-Inch Beacon/24-Inch-Diameter Beacon/ Twenty-Four-Inch Double-End Rotating Beacon
24-Inch Dome/24-Inch Double End/36-Inch Double End/24-Inch Single End
Rotating 24-Inch Beacon
Beacon, 36-Inch, Double-End Type
Beacon, 36-Inch Rotating Beacon
CAA-291 36-Inch Rotating Beacon
Four-Beam 24-Inch Beacon
36-Inch Beacon
36-Inch Double End, Rotating Beacon/36-Inch Double-End Rotating Beacon
36" Rotating Beacon
36-Inch Revolving Beacon
Thirty-Six-Inch Spherical Rotating Beacon

Double-Ended 36-Inch Diameter Beacon
DCB 36-Inch Rotating Beacon/DCB Rotating Beacon/DCB Rotating-10 Beacon

c) Energy Source-Related Terms
General Note
Acetylene Beacon
Acetylene Gas Beacon
Electric Beacon
Electric Beacon Light
Electric Light Beacon
Flashing Gas Beacon
Gas Beacon
Gas Flashing-Beacon/Gas-Flashing Beacon

4B3 Morphological Terms

a) Airport Beacons

1) Airfield & Airport Beacons
General Note
Aerodrome Identification Beacon
Aeronautical Beacon Light
Airfield Beacon
Airport/Heliport Beacon
Airport Identification Beacon
Airport (Land) Beacon/Airport (Water) Beacon
Alternating Green/White Beacon/Alternating Yellow/White Beacon
Military Airport Beacon*

2) Code Beacons
Code Beacon
Airport Code Beacon
Airport Rotating Beacon
Auxiliary Airport Beacon
Auxiliary Airport Code Beacon
Auxiliary Beacon
Auxiliary Code Beacon
Auxiliary Green Code Beacon

Electric Code Beacon
Flashing Code Beacon/Flashing-Code Beacon
Flashing Green Beacon
Identification Beacon
Identification (Code) Beacon/Identification Code Beacon
Long Range Beacon
Rotating Airport Beacon
Rotating Beacon for Small Airports/Airport Rotating Beacon for Small Airports

b) Airway Beacons
Acetylene Gas Blinker
Airway Beacon
Air-Way Beacon
Airway Beacon Light
Airway Light Beacon
Air-Route Beacon
Automatic Routing Beacon
Auxiliary Blinker Light
Aviation Routing Beacon
Course Light/Course-Light
Electric Routing Beacon
En Route Beacon
Fixed Course Light*
Gas Routing Beacon
Lighting Airway
Route Beacon
Routing Beacon
Sperry Airways Beacon

c) Heliport & Other Beacons
Heliport Beacon
Heliport Identification Beacon
Heliport Rotating Beacon
High Intensity Heliport/Medium Intensity Heliport Beacon
Identification Beacon for Heliport Use
Revolving Projector Type of Beacon

Rotating Heliport Beacon
Seaplane Base Identification Beacon
Seaplane Base Light Beacon
High Intensity Seaplane Base Beacon/Medium Intensity Seaplane Base Beacon
Stolport Beacon

4B4 Miscellaneous Beacons & Support Structures

a) Miscellaneous Beacons
Approach Light Beacon
B.B.T. Flashing Beacon
Cluster Beacon
Flickering Beacon
Incandescent Beacon
Landmark Beacon
Solar Powered Beacon

b) Support Structures
General Note
51' Airport Beacon Tower
Beacon Tower:
Prefab Tower Structure
Structural Steel Tower
Tubular Steel Tower
Double Wood Pole Tower
Tubular Tower/Tubular Beacon Tower/Tubular Steel Airport Beacon Tower
Airport Beacon Tower
Tower, Aerial Navigation Beacon

4B5 Obstruction Lighting
General Note I, II, III

a) Overarching Terms
Airport Hazard Beacon
Hazard Beacon
Hazard Light
Hazard Warning Beacon
Obstacle Light

Obstruction Identification
Obstruction Lights
Obstruction Lighting
Obstruction Marker & Lighting
Obstruction Marker Lighting
Red Danger Light
Tower & Obstruction Lighting/Tower Obstruction Lighting

b) Beacons
Anticollision Beacon
Beacon, 300mm Hazard/300mm Beacon (Obstruction)/ 300mm Hazard Beacon/300-mm Hazard Beacon/300mm Beacon
Red Beacon (Obstruction)
Flashing Beacon
Flashing Hazard Beacon/Flashing Red Hazard Beacon
Flashing, Omnidirectional Beacon
Light, Navigational, Beacon, Obstacle or Code
Military Airport Beacon*
Obstacle Beacon
Obstruction Strobe Beacon
Rotating Beacon
Rotating Lights*
Rotating 24-Inch Beacon
300mm Code Beacon/Flashing Code Beacon/300mm Code & Hazard Beacon
300mm-Milimeter Fresnel Lensed, Obstacle or Code Beacon Navigation Light

c) Obstruction Lights-Incandescent & Miscellaneous Types
Aviation Red Obstruction Light
Double & Single Obstruction Light
Double Obstruction Light
Field Obstruction Light
Low Intensity Obstruction Light
Neon Obstruction Lighting
Obstruction Marker Light

Red Obstruction Lighting
Single Obstruction Light
Steady-Burning Light/Steady Burning Red Obstruction Light
Suspension Type Obstruction Light

d) Obstruction Lighting-Strobes & Composite Types
Catenary Lighting
Daytime Lighting for Tall Obstructions
Dual Lighting/Dual Lighting System
Dual Lighting with Red-Medium Intensity Flashing System/ Dual Lighting with Red-Medium Intensity Flashing White/ Dual Red-White Medium Intensity Obstruction Strobe Beacon
High Intensity Flashing White Lights
High Intensity Flashing White Obstruction Light
High Intensity Obstruction Lighting System
High Intensity White Obstruction Light
Low-Power Consumption Strobe-Type/Strobe-Type Flashing Red Obstruction Light
Medium Intensity Flashing White Obstruction Light
Medium Intensity Flashing White Obstruction Lights 40 FPM/ Medium Intensity Flashing White Obstruction Light, 60 FPM
Medium Intensity Obstruction Strobe Beacon/Medium Intensity Obstruction Strobe
Medium Intensity Omnidirectional Flashing White Light System
Medium Intensity Strobe
Obstacle Lights
Low-Intensity Lights
Medium-Intensity, Type A 60-90 fpm
Medium-Intensity, Type A 20-60 fpm
Medium-Intensity, Type B 20-60 fpm
High-Intensity Obstruction Light, Type B
Obstruction Strobe Light/Obstruction Warning Light

4C Approach Lighting
4C1 Overarching Terms
a) Major Terms
Approach Lighting Systems

Approach Lights
Approach Lighting

b) Secondary Terms
Airport Approach Lighting
Airport Approach Lighting System
Approach Light System/Approach Light System (ALS)*
Approach-Light
Approach Lighting System
Approach Aids
Approach System
Civil Visual Approach Aids
Descent Aid*
Descent Indicator Aid*

c) Sub-Overarching Terms
Airfield Approach Systems
Alignment-Type Carrier Landing Systems
Approach Visual Guidance Systems
Final Approach & Take-Off Area (FATO)
Ground Lights for Landing Guidance
Landing Aids
Lighting Systems
New Generation Runway Visual Range System*
Night Landing System*
Standard Approach Aid
Touchdown System*
Visual Aid to Approach for Landing
Visual Approach Aids
Visual Landing Aids

4C2 Equipment Terms

a) Physical Terms
General Note
Flashing Light*
High Intensity Unidirectional Lamp
Lamp Housing Assemblies*
Low Intensity Omnidirectional Elevated Lamp

Medium Intensity Omnidirectional Elevated Lamp
Omnidirectional Flashing Lamp
Unidirectional Flashing Lamp
Further Terms:
Capacitor Discharge Light
Condenser Discharge Light

b) Physical/Morphological Terms
General Note
ALS Threshold Light Bar
Approach Direction Light
Approach Flashers
Approach High Intensity Undirectional Light
Approach, Inset
Approach Light
Approach Light Bar Assembly
Approach Lights for Other Instrument Runways
Approach Medium Intensity Omnidirectional Elevated Light
Approach Sequence Flashing Uni-Directional Direct Line Couple Flashing Light
Approach Side Row
Approach, Threshold
Barrette/Centre Line Barrette
Bartow D-1 Lights
Electronic-Flashing-Approach Lighting
Elevated Approach Light
Flashers/Flashing Light
Flashing Approach Light
Flush Approach Light
Ground Level Approach Searchlight, High Intensity
Helipad Approach Light
High Intensity Approach Lights
High Intensity & Displaced Threshold Lights
High Intensity Double-Skinned Unidirectional Elevated Approach Light
High Intensity Uni-Directional Inset Approach Light

Light Marker Airport Approach
Lights, Flashing, Omni-Directional: ODALS, REILS
PAR 56 Approach Light
Q20A/PAR 56 Approach Light/PAR 56 Approach Light Lamp
Semi-Flush Approach Light
Sequence Flasher/Flasher
Sequence Flashing Lights on Center Line Approach
Sequence Flashing Lights
Sequence Flashing Lights-Unit
SFL
Side Row Barrettes
Steady Burning Lights

c) Support Structures
General Note
Low-Impact Resistant Structures
LIR
Frangible Safety Mast for Approach Systems
Frangible Safety Approach Mast
Safety Mast for Approach Lights
Safety Mast for Approach Systems

4C3 Approach Lighting Systems
General Note

a) Approach Lighting Systems
Approach Light/Approach-Light
Approach-Light Systems
Approach Lighting Systems
Approach Light Systems (ALS)
ALSF-1/ALSF-I
ALSF-2/ALSF-II
ALSF-2 System/ALSF-2 Approach-Light System
Alpha System
ALSF-II-SSALR Dual Mode High Intensity Approach Light System/ALSF-II/SSALR Dual Mode System/Dual Mode High Intensity Approach Lighting System
ALS/SFL Cat I & Cat II

Approach Light System for Cat II & III Runways
Approach Light System for Cat I Operations
Approach Strobes
Cat I ALS/Cat II ALS
Cat 2 Approach Lights
Circling Approach Lights
FAA High Intensity
High Intensity Approach Light Systems/High-Intensity Approach-Light System/High-Intensity Approach Lights
High Intensity Approach Light System with SF
High-Intensity Approach Lighting
High Intensity Lights
MALS
MALS, Medium Intensity Approach Light Systems
Approach Light System, M.I., MALS
MALS Steady Burning Light
MALSF
MAL/SF
MALSR
MALSR Approach-Light System
MALSR System
Medium Intensity Approach Lighting
Medium Intensity Approach Lighting Bar Assembly
Medium Intensity Approach Lighting Equipment
Medium Intensity Lighting System
Medium Intensity (MALSR, MALSF, MALS)
Non-Instrument Approach System
Non-Precision Approach Lighting System
Precision Airport Category I Lighting System
Precision Approach Category I Light System
Precision Approach Cat II & III Lighting System
SALS
Simple Approach Lighting System
Simple System
Simplified Approach Lighting/Simplified Approach Lighting

System
"Simplified" Approach Light System
SSALF
SSALS
SSALR
Standard High Intensity Approach Lighting System
Straight-In Approach System
System of Approach-Lights

b) Special Approach Lighting Types
Airport Lead-In Lighting System (LDIN)
Circling Guidance Lights
Lead-In Lights
Lead-In Light System (LDIN) Airport Lead-In Light System/ Runway Lead-In Lighting System
Lead-in-Lighting
Long Lead-In Strobe Lighting System (LLDIN)
ODALS
Omnidirectional Approach Light System (ODALS)
Omnidirectional Approach Lighting Systems (ODALS)
Omnidirectional Flashing Lights
Omnidirectional Lead-in Approach Light System
Omnidirectional Lead-in Lights
Omnidirectional Lights
RAILS/Runway Alignment Indicator Lights/Runway Alignment Indicator Light System
REIL
RIL, Runway Identification Lights
Runway End Identifier Light (REIL)
Runway-End Indicator Light*
Strobes
Visual Vector Omnidirectional Approach Lighting System

c) Historic Terms
1) Slopeline Systems
Double-Row Funnel-Shaped Slope Line Configuration/ Dual-Row Funnel-Shaped Slope Line Configuration

Pearson Slope Line Approach Light System
H.I. Slopeline Approach Lights
Slope Line Approach Lighting System
Slope Line Approach-Light System/Slope-Line Approach-Light System/Slope Line Approach Line System
Slope Line Lighting System
Slope Line System
Slopeline Approach Light System
Slope-Line Approach System*
Slopeline System
Slopeline-Transverse-Bar Approach-Light System/ Slopeline Approach-Light/Slopeline Approach-Light System with Transverse Bars (SET)
Slope Line High Intensity Approach Lighting System
Slope Line System of High Intensity Approach Lights
Slopeline
Slope Line Lights
Slope Line Approach Lights/Slope-Line Approach Lights
Slope & Approach Light
Slope Approach

2) Center Line Systems
General Note
Center-Line Approach Light System
Center Line Approach System
Centerline Approach Lighting System/Centerline Approach Light System
Center-Line Lights
Center Line System
Center-Line System
Centerline System
Center Line Approach System
Center Line Approach Lighting
Center-Line High Intensity Approach Light System
Center Row System
Center-Line "Configuration A" System

Single-Row Center-Line System
Centerline System with Strobeacon
Centerline-Crossbar Configuration
Centerline Crossbar System

3) Other Historic Approach Lighting Systems
AGA Funnel System
All-Weather Approach Lights Approach System
ALPA System
Air Line Pilots Association (ALPA)
ALPA ATA Approach Lighting System*
Angled Linear System
Barrette Centreline Approach Lighting System*
Bartow Approach Lights
Bartow Light System
Bartow Multi-Row Approach-Light System
Bartow System
Calvert Bar System
Calvert Centreline & Crossbar System*
Calvert International System*
Chance Light*
Money Flare*
Calvert System
Civil Airfield Approach System
Distance Coded Centerline Approach Lights*
Funnel-Shaped System*/Funnel-Shaped Lights
Funnel System
Landing Approach Light System
Left-Hand Row System/Double-Row System
Modified Calvert System
Calpa or Alpert System
Calvert (English) System
Calvert System of Approach Lights
Calvert & RAE System
Centerline Lighting
Configuration A

Drem I*/Drem II*/Drem System*
Dutch System
EFAS, Electronic Flash Approach System
EFAS
Flare Path*/Flare Path System*
Glim Lamp Flare Path System*
Glim Lamp System*
High Intensity Incandescent Approach Lights (ALS)/
Medium Intensity Incandescent Approach Lights (ALS)
Incandescent-Lamp Approach System
Interrupted-Sequence-Flashing Approach-Light System
Left-Hand, Single-Row, Ladder-Type, High Approach
Light Lanes
Approach Light Lanes
Left-Hand-Row System/Left-Hand Row "Ladder System"
Multi-Row Approach-Light System
National System
Neon Approach Light/Neon Approach-Light/Neon Light
System
Neon Approach Lighting System
Neon Ladder/Neon-Lamp-Ladder Approach System
Parallel-Row System/Parallel Row Approach Light System/
Parallel Row Approach-Light System
RAE Horizon-Bar System (RAE)
Row-Type Approach Light System
Standard Approach Light System
Surface Illumination System*
System of Neon Approach Lights
Two-Row Approach-Light System
U.S. National Standard Configuration "A"/U.S.
Standard Configuration A (Alpha) System
Component of Approach Systems:
Steady-Burning Approach Light
Terminating Bar
Wing Bar

4C4 Final Approach Equipment

a) Overarching Terms

Approach Path Slope Indicator
Approach Visual Guidance System
Bar-Type Aid*
Heliport Approach Path Indicator (HAPI)
Glide Path Light Indicator
Ground-Based Visual Light Guidance System
Medium-Intensity HAPI Unit
Visual Approach Descent Indicator (VADI)
Visual Approach Guidance Indicator Systems
Visual Glide Path Aid
Visual Glide Path Indicator
Visual Guide Path Indicator (VGPI)
Visual Guide Slope Indicator
Visual Guide Slope Indicator System

b) Precision Approach Path Indicators

Four Box Precision Path Indicator System*
Precision Approach Path Indicator/Precision Approach Path Indicator (PAPI)*
PAPI
Precision Approach Path Indicator (PAPI) System
Precision Approach Path Indication Lights*
PAPI System
PAPI Approach System
PAPI Glide Path Lighting System/GPLS
PAPI Lights/Precision Approach Path Indicator (PAPI) Lights
PAPI-4/PAPI-2
PAPI Wing Bar
Abbreviated PAPI
Abbreviated Precision Approach Path Indicator (APAPI)
APAPI
Mini-PAPI
CHAPI/CHAPI System
Portable PAPI

Three Lamp PAPI

c) VASI Systems

1) System

Visual Approach Slope Indicator (VASI)
Visual Approach Slope Indicator (VASI) System/Visual Approach Slope Indicator System
Visual Approach Slope Indicator System (VASIS)
Visual Approach Slope Indicator System
VASI
VASI Approach Indicators*
VASI System
VASI-Type Approach Aid*
VASIS
A-VASIS
AVASIS
Abbreviated Visual Approach Slope Indicator
Abbreviated Visual Approach Slope Indicator System (AVASIS)
SAVASI
RT-VASIS
AT-VASIS
T-VASIS Light Units (Blade Type)/T-VASIS Light Units
T-VASIS/Tee Visual Approach Slope Indicator

2) Operational Types

General Note
VASI-2/VASI-4/VASI-6/VASI-12/VASI-16
VASI-II/VASI-IV/VASI-VI [3 Bar]/VASI-XII [3 Bar]
2-VASIS
12-Box VASI/12-Box VASI System
4-Box VASI
2-Box VASI
2-Bar VASI/2-Bar VASIS/3-Bar VASI/3-Bar VASIS/2-Bar System/3-Bar System
VASI-2nd Light Bar/VASI 1st Light Bar
2-Bar System (VASI-2, -4, -12)/3-Bar System (VASI-6, -16)
R-W VASIS*

Standard VASIS*

d) Other Final Approach Types

1) Glide Path

Approach-Angle Lights
Glide Path Indicator
GPI
Glidepath Indicator
Precision Visual Glide Path (PVG)
Pulsating System
PVG System
TEE System
Tee Visual Glidepath (Tee or TVG)
TVG

2) Tri-Color

Tri-Color Glide Path Indicator
Tri-Color Systems
Tri-Color Visual Approach Slope Indicator

3) Fresnel

Navy Fresnel System/Navy Fresnel Lens Optical Landing System/
Fresnel Optical Landing Systems, FLOLS/FLOLS,
Fresnel Lens Optical Landing System
Fresnel System
MDLA, Mirror Deck Landing Aids
Mirror System

4) PLASI

HAPI-PLASI
HELI-PLASI
PLASI
PLASI I, II
Portable PLASI
Pulsating Visual Approach Slope Indicator
Pulse Light Approach Slope Indicator (PLASI)
Pulsed Light Approach Slope Indicator

5) Miscellaneous Systems

AAI System

Alignment of Elements System
Angle of Approach Indicator (AAI)
Angle of Approach Light/Angle-of-Approach Light
Flashing Aids*
Generic Visual Glidescope Indicator (GVGI)
Optical Projector Ground Aid
Optical ILS
Pulsating Systems
Pulse Coded Optical Landing Aid
SAGA (System of Azimuth Guidance for Approach)
Standard Visual Approach Guidance Aid
Visual Approach Descent Indicator (Rotary Wing)
Visual Angle of Approach Indicator
VGSI

4D Runway & Taxiway Lighting

4D1 Runway Lighting

a) Overarching Terms

General Note
Runway Lights
Runway Lighting
Runway Lighting System
Runway Visual Aids
In-Runway Lighting
Primary Airfield Lights
Runway/Mos Lighting

b) Runway Edge Lights

Runway Edge Lights
Runway-Edge Lights
Runway Edge Light System
Runway Edge Lighting/Runway Edge Lighting System
Runway Outline Lights
Standard Lights/Standard Edge Lights
Edge Lights/Edge-Lights
Edge Lighting
Edge Lighting System

Elevated Edge Lights
Low Intensity Edge Lights

c) Runway Centerline Lights
Airport Centerline Lights
Center Line Lights*
Centerlights
Centerline Lights
Centerline Lighting System
Centerline Guidance Lights
Centerline Runway Lights
Centre Line Lights
RCLS
Runway Centreline Lights/Runway Centre Line Lights
Runway Centerline Lights
Runway Centerline Lighting (RCLS)
Runway Centerline Lighting System/Runway Centerline Lighting System

d) Threshold, Touchdown Zone, Runway End & Other Lights
General Note
"Narrow Gauge" Pattern
Road-Holding Position Light for Vehicles
Runway Touchdown Zone Lights/Runway Touchdown Zone Lights (TDZ)
Touchdown Zone Lights/Touchdown Zone Lights (TDZL)*
Touchdown Zone Light System
Touchdown Zone Lighting
TDZL
TDZ Light Bar
Airport In-Runway Touchdown Zone Light
Runway End Lights
Runway Threshold Lights
Runway Threshold & Wing Bars/Runway Threshold & Wing Bar Lights
Threshold/End Lights//Threshold/End Lighting
Threshold Lights

Threshold Lighting
End Light, End of Runway Lights
Lights, Runway End
Runway Remaining Lighting/Runway Distance Remaining Lighting
Exit Taxiway Lighting
Taxiway Turnoff Lights
Taxiway Lead-Off Lights
Taxiway Traffic Signals
Stopway Light

e) Runway Equipment Terms
General Note

1) General Terms
Bidirectional
Elevated
Omnidirectional
Unidirectional
Flush
In-Pavement/Inpavement
In-Runway
Inset
Semi-Flush

2) Physical Apparatus
Airport In-Runway Light
Airport In-Runway TDZ Light
Bidirectional Center Line Fixtures
Bidirectional High/Medium-Intensity Runway Light
Bi-Directional Semiflush Inset Light Assembly
Elevated Edge Lights
Elevated Lights
Elevated Runway Edge Light
Elevated Runway Light
Elevated Threshold Light
Fixed Focus Bidirectional High Intensity Runway Light/ Fixed Focus Undirectional High Intensity Runway Light

500 Watt High Intensity Runway Light with Automatic Beam Control
Flash Lights
Flush Centerline Light
Flush Light
In-Runway Light Fixture
In-Runway Lights
Inset Light
Light Assembly, Airport Runway Centerline & TDZ/Light Assembly, Airport Runway, Centerline & TDZ Zone/ Light Assembly, Airport Runway & Centerline
Light Assembly, Airport Taxiway Centerline
Lights, Portable Runway
Lights, Runway Edge Low Intensity
Lights, Runway, In-Pavement
Multiple-Purpose Elevated Light
Narrow Gauge Runway Lights/Narrow Gauge Lighting System (Runway)
Omnidirectional Lights
Portable Edge Light
Portable Runway End Identifier Light
Radio-Controlled Runway Edge Light
Rnwy/LGTS
Runway In-Pavement Light/Runway Inpavement Light
Semiflush Airport Light/Semiflush Airport Lighting
Semiflush Inset Prismatic Light
Semiflush Intersection Light
Semiflush Light
Semiflush Prismatic Airport Light/Semiflush Inset Prismatic Airport Light
Standard High Intensity Runway Lighting
Unidirectional Lights
Unidirectional Semiflush Inset Light Assembly
Undirectional Threshold Light
Undirectional Touchdown Zone Light Fixture

3) Light Equipment by Intensity
General Note
Elevated High Intensity Runway Light Fixtures
High-Intensity Bidirectional Inset Lights
High Intensity, Elevated Type D-1 Lights
High-Intensity Lights
High Intensity Lighting System
High Intensity Runway Lights
High Intensity Runway Lighting
HIRL
High Intensity Light System/High Intensity Runway Light System
High Intensity Runway Edge Lights/High-Intensity Runway Edge Lights/Runway High-Intensity Edge Lighting System
High Intensity Approach Runway Light
High Intensity Runway Edge Light
High Intensity Light
High Intensity Runway Light
HIRL/MIRL
Low Intensity Edge Lights
Low Intensity Lights
Low Intensity Runway Edge Lighting
Low Intensity Runway, Landing Strip & Taxiway Light
Low Intensity Runway Lights (LIRL)/Medium Intensity Lights (MIRL)/High Intensity Runway Lights (HIRL)/Low Intensity Runway Edge Light/Medium Intensity Runway Edge Lights/
Medium Intensity Elevated Runway Edge Light Fittings
Medium Intensity Lights
Medium Intensity Lighting System
Medium Intensity Type M-1 Runway Edge Lights/High Intensity Type M-1 Runway Edge Lights
Medium Intensity Threshold Special Lights
Medium/Low-Intensity Runway Light
Medium Intensity Runway Edge Light
Runway Edge Lights: LIRL, MIRL, HIRL

4D2 Taxiway Lighting

a) Overarching Terms

Low Visibility Taxiway Lighting Systems
Systems of Taxiway Lights
Taxiway Lead-Off Lights
Taxi Lights
Taxiway Lights
Taxiway Lighting
Taxiway Lighting System
Taxiway Marker Light
Taxiway/Obstruction Lighting
Taxiway Series Lighting System

b) Taxiway Edge Lighting

Taxiway Edge Lights
Taxiway Edge Lighting
Taxiway Edge Lighting System

c) Taxiway Centerline Lighting

Center-Line Lighting
Centerline Guidance System
Taxiway Centerline Lights
Taxiway Centerline Lightings
Taxiway Centerline Lighting Systems
Taxiway Centre Lights
Taxiway Centreline Lights
Taxiway Centre Line Lights
Taxiway Centre Line Lights on an Exit Taxiway
Taxiway Center Line Lighting on Taxiway/Taxiway Center Line Lighting on Rapid Exit Taxiways/Taxiway Center Line Lighting on Other Exit Taxiways
Taxiway Centreline Lighting

d) Physical Apparatus & Other Terms

1) Physical Apparatus

General Note
Bidirectional Lights
Blister Lights

Button Lights
Edge Light
Elevated Taxiway Lights for Holding Position Markings
45W Taxiway Edge Lamps
Fully-Flush Lighting Fixtures/Fully Flush Fixture
Holding Position Edge Lights
In-Pavement Taxiway Lights/Lights, Taxiway, In-Pavement
Inset-Type Runway & Taxiway Lights
Light Assembly, Airport Taxiway Center
Low Intensity Taxiway Light (LITL), Low Intensity Taxiway Edge Light
Medium Intensity Light (MITL)/Medium Intensity Runway Light
Medium-Intensity Light/High Intensity Light
Medium-Intensity, Omnidirectional Elevated Light
Semi-Flush Fixtures
Semiflush Inset Lights
Taxiway Inpavement Light/Taxiway In-Pavement Lights
Unidirectional, Bidirectional, Light Assembly Airport Taxiway Centerline

2) Other Taxiway Lights

Aircraft Arresting Marker Light
Automatic Block Signal Control
Barrette
Clearance Bars
Clearance Bar Lights
Entrance-Exit Lights
Runway Guard Light
Snow Area Lights (Elevated Lights)
Stop-and-Go Signals
Stop Bars/Stop Bar System
Stop Bar Light/Stop-Bar Light
Taxiway Guidance Lights
Taxi-Holding Position Lights
Taxiway Intersection Lights
Taxiway Traffic Control System

4D3 Historic & Composite Terms

a) Historic Terms: Boundary, Contact & Range Lights

- Border Lights*
- Bounday Lights
- Boundary Lights System
- Contact Lights
- Contact Lights of the Marker Type
- Contact-Light System/Contact Light System
- Distance-To-Go (DTG) Marker Lights/-Lighting
- Flush Marker
- Floating Seadrome Lights
- Land & Hold Short Lights
- Range Lights

b) Composite Terms

- General Note
- Centerline & or Touchdown Zone Lights
- Centerline & Touchdown Zone Lighting Systems
- End/Threshold Light
- Lights, Runway & Taxiway Edge, Low Intensity Lights, Runway & Taxiway Edge, Medium Intensity
- Runway Center & TDZ Lights/Runway Centerline & TDZ Lighting Systems
- Runway & Strip Light
- Runway & Taxiway Edge Light
- Runway & Taxiway Edge Lighting Systems
- Runway & Taxiway Lights
- Runway Threshold/End Lights
- Threshold & Runway End Light/Threshold Runway End Lights
- Touchdown & Centerline Light

Notes

New Terms:

AIM 2004

Approach Light System (ALS) [new: (ALS)]
Military Airport Beacon
Navigational Aids (Navaids)
Navigational System
Precision Approach Path Indicator (PAPI) [new: PAPI]
Touchdown Zone Lights (TDZL) [new (TDZL0]

Clark & Gordon 1981

R-W VASIS

Young JN 1994

Bar-Type Aid
Calvert International System
- Components:
  - Chance Light
  - Money Flare

Descent Aid
Descent Indicator
Drem I
Drem II
Drem System
Flare Path/Flare Path System
Glim Lamp Flare Path System
Glim Lamp System
International Lighting System
Night Landing System
Night Landing & Approach Aids
Surface Illumination System

Touchdown System
VASI Approach Indicators
VASI-Type Approach Aids

FAA FTP 2000

Flashing Lights
Four Box Precision Path Indicator System
Lamp Housing Assemblies
National Airspace System (NAS) Ground-to-Air (G/A) Systems
[landing sub-element]
New Generation Runway Visual Range System
Runway-End Indicator Light

ICAO AD editions

ALPA ATA Approach Lighting System
Barrette Centreline Approach Lighting System
Calvert Centreline & Crossbar System
Center Line Lights
Distance Coded Centreline Approach Lighting System
Standard VASIS

Komons 1978

Fixed Course Lights
Aerial Lighting

Kroger 1948

Funnel-Shaped Lights

Literary Digest 1926

Border Lights

Mola 2003

Aircraft Landing Aids
Precision Approach Path Indication Lights
Rotating Lights

Sharp 1944

Contact Lights of the Marker Type

Part J

Aero Aid
Aero Lights
Aero Safety Aids
Aero Visual Aids
Beacon Aids
Flashing Aids
Funnel-Shaped Lihts
Funnel-Shaped System
Landing Aids to Navigation
Visual Aero Aids

Differences Between Index and Text of Database:

Navaids in Index but Navaid in Text; Review
Radio & Navigation Aids in Index but Aid in Text; significant? Review
Airport Visual Navigation Aids System in Index but Navigational in Text.

Approach & Runway ... System in Text; add System to Index
Approach, Threshold, & Runway End Elevated... in Index; no & in Text
Approach/Threshold/Runway End Inset Light in Index; Elevated in Text
Above terminated duplicated in Index; drop one.
Lighted Aids for Air Navigation for Air Navigation in Text; add to index
Aeronautical Ground Light in Index is duplicated; delete one
Aerodrome Lighting Systems in text; singular in Index
Marking & Lighting/Lighting & Marking in Index; text has Marking and Lighting Systems; delete second term in Index; add term from Text
Beacon not listed in Text as individual term but is in Index
Twenty-Four-Inch Beacon duplicated in Index; drop one
Alternating Green/White Beacon//Alternating Yellow/White Beacon in Index; Text employs Alt for both.
Beacon, 300mm Hazard/300mm Beacon (Obstruction), 300 mm ... in Index but / between) and 300 in Text.
[Arrangement of Sub-Overarching Terms very different between Index & Text].
Capacitor Discharge Light and Condenser Discharge Light preceded by Further Terms in Equipment Terms in Text
Approach Side Row, High Intensity in Index; no High Intensity in Text
ALSF-II/SSALR Dual Mode ... /ALSF-II/ SSALR Dual Mode System in Index but / omitted in Text for ALSF SSALR Dual Mode System
Approach Light System for Cat I Operations in Text; add in Index
Cat I ALS/Cat II ALS together in Text; separate in Index
MALSR Approach-Light System in Text; add to Index
Non-Precision Approach Light System not in Text: Review
Non-Precision Cat II & III Lighting System not in Text: Review
Simple Approach Lighting System in Text; Index has Light not Lighting
Lead-In-Lighting duplicated in Index; delete one
Neon Approach Light/Neon Approach-Lights/Neon Light System in Text; add to Index
Neon Approach Lighting System
Neon Ladder/Neon-Lamp-Ladder Approach System in Text; Neon Ladder missing from Index but now added
Wing Bar and other terms preceded by Components of Approach Systems: in Text; add to Index

VASIS: Types accompanied by General Note in Text; add to Index
2-Bar System/3-Bar System in Index joined by (VASI-2, -4, -12) for first entry and (VASI-6, -16) for second in Text; now added to Index.
PVG in Index and in Text; how description in Text adds System; now added to both.
Tee Visual Glidepath in Index joined by (Tee or TVG) in Text; now added to Index.
Pulse Code ... in Index is altered to Pulse Coded ... in Text; now added to Index
Runway Visual Aids in Text; add to Index
High Intensity Slopeline Approach Lights in Index; H.I. in Text
High Intensity Slopeline Approach Lights duplicated in Index; one entry deleted.
Centerline-Crossbar Configuration
Angled Linear System in Index and should be in Text
Landing & Approach Light System in Index lacks & in Text
Centerlineline Lighting in Index; second line omitted
Left-Hand, Single-Row, Ladder Type, High Approach Light Lanes in Index; Light Lanes omitted in Text; now added
Left-Row System in Text; now added to Index
Edge Lighting System in Text; added to Index
TDZL in Text; added to Index
Runway Threshold & Wing Bar in Index joined by Runway Threshold & Wing Bar Lights in Text; now added to Index
Runway Remaining Lighting ... in Index has Lighting mispelled; now corrected.
General Note for Runway Equipment adjacent to General Terms in Index; now moved to Runway Equipment
Elevated Runway EdgeLight in Index requires space between Edge and Light
Low Intensity Light in Text; added to Index
Low Intensity Runway Lights (LIRL) ... joined by Low Intensity Runway Edge Light/Medium Intensity Runway Edge Lights/High Intensity Runway Light
A review of the use of the acronyms MIRL and MITAL is needed.
Stop Bar Light/Stop-Bar Light in Text; added to Index
Flush Marker in Text; added to Index
Runway & Taxiway Edge Light
Differences Between Classifications & Database

Note: Aero terms are often very technical. That may help to explain why a number of differences in terminology has crept into both the Classifications and Database coverage. Complexity and lack of close attention to detail may also have led to a number of errors. A difference in focus in Database and in the Classification is another possible factor. Some of the differences tend toward minutiae.

General Terms:

Lighted Aero/Aeronautical Navigation Aids contrasts with Aero Lighted Navaids

All-Lighted Aids and Partially-Lighted Aids are terms employed in the Classification but not included in the Database.

Approach Terms:

Capacititor Discharge in the Classification is mispelled; it should be Capacitor.

Database employs Lamps in places where Lights are found in the Classifications. Difference in terminology not clear and requires clarification.

Final Approach Indicator in Classification contrasts with Equipment in Database. Difference, again, not clear.

Runway & Taxiway:

Inpavement employed in the Database but little use is made of Inset. That contrasts with Inset as well as Inpavement in the Classifications.

Runway & Taxiway Elevated Lights in the Classifications lacks Elevated in the Database.

Edge added to Holding Position in Database but not to Classifications

Light omitted from Clearance Bars in Database

Beacons:

Term not added to various types of Beacons in Classification since Beacon appears in the heading. Database includes full titles.

Wind Direction Indicators:

Full term in Database while Part G has only Indicator; Part H has Wind and Indicator.

4E Radio Aids

4E1 Overarching Terms

a) General Terms

Aeronautical Radio Navigation
Aeronautical Radio Navigation Services
Air Navigation Aids/Air-Navigation Aids
Air Navigation Radio Aids
Air Navigation Facility (Navaids)
Air Navigational Radio Aids
Air Navaids
Air Navigation Systems
Electronic Aids
Electronic Landing Aids
Electronic Navigation Aids
Electronic Navigational Aids
Fixing System*
Ground Aids
Ground-Based Radio Aids
Ground-Based Navigation Aids
Ground Aids to Instrument Flight
Landing Area Radio Navigational Aids
Route Radio Navigation Aids
IMO Worldwide Radionavigation System*
Instrument Flight Aids
Navaid Systems
Navigation System
Primary Navaids
Radio Aids
Radio Aids to Air Navigation
Radio Aids to Navigation
Radio Location & Approach Aids*
Radio-Based Navigation Service
Radio Navaids
Radio Navigation Aids

Radio Navigational Aids/Radio-Navigational Aids
Radio Navigation/Radionavigation
Radionavigation Aids/Radio-Aids
Radio Navigation System/Radionavigation Systems/Radio-Navigation Systems
Radio Navigation Service
Radio-Navigational System

b) Sub-Overarching Terms

Long-Distance Aids
Long-Distance Aids to Navigation
Long-Distance Navigation Aid/Long-Distance Navigation Aids
Long-Distance Radionavigation Aids
Long-Range Navaids
Long Range Radio Navigational Aids
Short & Long Distance Radio Navigational Aids
Short Distance Aids to Air Navigation/Short-Distance Aids to Air Navigation
Short Distance Aids/Short-Distance Aids
Short Distance Navigation Systems*
Short-Distance Radio Aids/Short Distance Radio Aids
Short-Distance Radio Aids to Navigation/Short Distance Radio Aids to Navigation
Short Range Navaids/Short-Range Navaids*

c) Special Terms

General Note
Area Navigation
Area Navigation (RNav)/Area Navigation (R-Nav)
Area Navigation System
Area-Based System
Long Distance Rnav/Short Distance Rnav
Nonprecision Rnav
Rnav
Rnav/FMS
Rnav System*
Fan/Fans

Future Aviation Navigation Systems
Altitude Heading Reference System (AHRS)*
ATM
ATM/CNS/ATM
CNS
Communication, Navigation, Surveillance
Flight Management System/Flight Management System (FMS)
INS
Inertial Navigation System/Inertial Navigation System (INS)
Inertial Systems/Inertial Systems (INS)
Inertial Reference Unit (IRU)*
Integrated Global Surveillance & Guidance System (IGSAGS)
Transponder Landing System (TLS)*

4E2 Terminal Navaids/Aids to Final Approach & Landing

a) General Terms

Aids to Final Approach
Aids to Final Approach & Landing
Landing Aids
Landing Area Radio Navigational Aids
Landing Area of System of Radio Navigation Aids
Landing Systems
Precision Landing System
Standard Non-visual Aid
Standard Non-visual Aid to Final Approach & Landing
Terminal Navigational Aids (Navaids)
Terminal Navaids

b) Historic Terms

1) Overarching Terms

Aircraft Approach & Landing Systems*
Instruments Methods of Approach & Landing*
Landing-Beam System
Methods of Landing by Co-operation with the Airport D.F. Control*
Wireless Aids*
Wireless Beacon Landing System

2) Systems

Army Air Forces Instrument Approach System Signal Set 51*
Baumann & Ettinger System of Blind Landing*
Beacon Method of Landing*
Bureau of Standards System*
D.F. Landing*
Dunmore Ultra-Short-Wave Landing Beam*
Equi-Signal Approach System*
Lorenz Thick Weather Landing System*/Lorenz System*
Marconi Medium Wave Equi-Signal Approach Beacon*
Marconi Ultra-Short Wave Approach Beacon*
Penetration Method of Landing*
System of Approach & Landing*
"ZZ" Method of Landing*
U.S. Bureau of Standards Blind Landing System*
U.S. Army Air Corps Blind Landing System*/Hegenberger System*
Zeppelin-Telefunken System*

3) Components

Boundary Beacon* [BOS=Bureau of Standards]
Boundary Marker* [BOS]
Landing Beam Transmitter [BOS]
Lorenz Beacon* L=Lorenz
Lorenz Glide & Path & Marker Beacon* L
Lorenz Main Beacon* L
Lorenz Outer Beacon Transmitter*
Marconi Medium Wave Equi-Signal Approach Beacon*
Marker "Beacon"*
Marker Signal* L/Warning Signal*
Outer Marker* [BOS]
Runway Localizing Beacon* [BOS]
Ultra-Short Wave Approach & Landing Beacon* L
Ultra-Short Wave Marker*
U.S.W. Approach Beacons*
U.S.W. Glidepath*

c) Instrument Landing Systems, ILS

1) Overarching Terms

General Note I, II
Instrument Landing Systems, ILS
ILS
Instrument Landing System (ILS)/Instrument Landing System/ILS, Instrument Landing System
Instrument-Landing System
I.L.S. (Instrument Landing System)

2) Other Terms

Instrument Low-Approach (ILS)
Fixed-Beam Low-Approach System
ILS 381
Cat I Instrument Landing System
ILS*
Cat I, -II, -III
ILS Cat II/III
ILS Cat II
(ILS)/DME*
ILS/DME*
Category II ILS*
Cat II/III ILS
Cat III, ILS
Cat III ILS

3) ILS Components

Course Indicator
General Note
Glide Slope/Glideslope*
Glide Slope Radio Course
Glide Slope/Glide Path
Glide Slope Facility
Glide Slope (GS) Facility
Glide Slope System/Glide-Slope System
Glide Path
Glide-Path

ILS Glidepath Transmitter
ILS Glideslope
Landing Beam*
Null-Type Glide Slope
Straight-Line Glide Path
ILS Glide Slope
ILS Glide Slope Subsystem
Two-Frequency Glide Path System
UHF Glide Slope Transmitter
ILS Glide Path Transmitter
ILS Glide Path
Localizer Unit (LO)
Localizer Type Directional Aid (LDA)*
Localizer
(LOC/DME*
LOC/DME*
LDA/Glidescope*
Wide-aperture Localizer
ILS Localizer
Offset Localizer
Two-Frequency Localizer System
Localizer Facility
Marker Beacons
Marker Beacons
Outer Marker, Middle Marker, Inner Marker*
ILS Middle Marker Beacon/ILS Inner Marker Beacon
NDB/Compass Locator*
Outer Marker Compass Locator/Middle Marker Compass Locator
Instrument Landing System Markers*
ILS Markers
ILS Marker Beacon*
ILS-Associated Fan Marker
Simplified Directional Facility (SDF)*
Solid-State Markers
Pole-Mounted Markers

75 MHz ILS Markers
VHF Marker Beacon
Back Course Markers
Back Course Marker Beacon

4) Microwave Landing Systems, MLS
General Note
(a) Overarching Terms
Microwave Landing System (MLS)/Microwave Landing System, MLS/Microwave Landing System
Microwave System*
MLS
MLS System
(Microwave Landing System) (MLS)
Standard MLS
(b) MLS Constituents & Other Terms
Departure System
Duplex MLS
Tactical MLS Station
Interim Standard Microwave Landing System/Interim-Standard Microwave Landing System (ISMLS)/Interim Microwave Landing System (ILSMS)/ISMLS
MLS/RNAV
MLS Precision Distance Measuring Equipment
Doppler MLS
Time Reference Scanning-Beam System
Scanning Beam MLS
SCAMLS
Stol/MLS

Components of MLS Include:
Azimuth Station
Elevation Station
MLS Azimuth/MLS Azimuth Station
MLS Azimuth Equipment
MLS Ground Station

MLS Elevation Equipment
DME/N*
Cat I MLS
Cat II MLS
Cat III MLS
Cat II Mobile MLS (MMLS)
Cat I/II/III MLS

4E3 En-Route Aids

a) Historic Terms

1) Early Terms

Equi-Signal Beacon*
Telefunken Compass/Telefunken Rotating Beacon
The Course Setter/Equi-Signal Course Setter
Scheller Course Setter System/Scheller's Course-Setter*
Scheller's (Lorenz) Equi-Signal Course-Setter*
The Wireless Lighthouse
Standard Beam Approach (SBA)
Lorenz Azimuth Guidance Beacon
Small Loop Aerial System
Bellini-Tosi Radiophare*
Bellini Tosi System
Bellini-Tosi Closed Loop System*/Bellini-Tosi Loop Aerial System*
Marconi Eight Channel Bellini-Tosi System*
Multi-Channel Marconi Bellini-Tosi (or Adcock) System*
Two Course Beacon/Four Course Beacon

2) Intermediate Terms

Radio Range/Radio-Range
Radio Range Equi-Signal Beacon System*
Radio Range Beacon/Radio-Range Beacon/Radio Range Beacon System*
Radio Marker/Radio Marker Beacon/Radio-Marker Beacon
Radio Range Station/Radio Station
Range
Aural Radio Range/Aural Radio Range Beacon*

Aural-Type Radio Range Beacon
Loop Type Range*
Low Power Range*
MRA or MRL Range*
U.S. Radio Range Beacon System*
Radio Ranges by Frequency
General Note
Low/Medium Frequency Radio Range (LLFR)
Low or Medium Frequency Radio Beacon
Low or Medium-Frequency Radio Range
Low and Medium Frequency Radio Range
Low-Frequency Four-Course Range
Low-Frequency Radio Range
Low/Medium Frequency (L/MF) Radio Range
Low Frequency Range
Four-Course Radio Range
Four-Course Radio Station
Four-Course Range

b) VOR/VORTAC/DME/TACAN Aids

General Note

1) VOR, VHF Omnidirectional Radio Range

General Note
VOR
VHF Omnirange (VOR)
VHF Omnidirectional Radio Range
VHF Omn-directional Radio Range (VOR)
VHF Omni-Directional Radio Range
VHF Omnidirectional Range (VOR
VHF Omni-directional Range (VOR)
Very High Frequency Omnirange (VOR)
VOR (VHF Omni-Range)
VOR (VHF Omnidirectional Radio Range)
Conventional VOR
Doppler VOR
General Note

Doppler VHF Omni-directional Range
Doppler VOR
Doppler VOR (DVOR)
DVOR
D-VOR

2) Distance Measuring Equipment, DME
General Note
Distance Measuring Equipment (DME)
DME
Distance Measuring Devices
Distance-Measuring Equipment (DME)
DME System
UHF Distance Measuring-Equipment (DME)

DME/W
DME/P
Precision Distance Measuring Equipment (P-DME)/MLS Precisio
Distance Measurement Equipment (DME/P)
DME/N

3) TACAN/Tactical Air Navigation
General Note
TACAN
Tactical Air Navigation (TACAN)
Tactical Air Navigational Aid
Tactical Air Navigation System
TACAN, Tactical Air Navigation
TACAN System

4) Composite Systems
DVOR/DME
DVORTAC
HVORTAC*
SVOR/DVOR
VOR/DME//VORDME
Doppler VOR/DME
LDME*

VOR/DME-Based RNAV//VOR/DME RNAV
VORTAC
VHF Omni-Directional Range/Tactical Air Navigation (VORTAC)
VHF Omni-Directional Range/Tactical Air Navigation
Associated VOR & TACAN (VORTAC)
VOR/DME (TACAN
VOR/Distance Measuring Equipment (DME) System of Air Navigation*
Backfit VOR with TACAN Rho/Theta
TVOR*

c) Hyperbolic Aids
General Note I, II

1) Overarching Terms
Hyperbolic Aids
Hyperbolic Navigation Systems
Hyperbolic Radio Navaids
Hyperbolic Radio Navigation*
Hyperbolic Airborne Navigation Aids
Hyperbolic Systems

2) Loran
General
Loran
Loran A/Loran-A/Loran-A System
Loran-C/Loran C/Loran-C System
Standard-Loran/Standard Loran/Loran, Standard
H.F. Loran
Low-Frequency Loran/L.F. Loran
SS-Loran (Synchronized Loran)/S.S. Loran/Skywave Synchronized Loran (SS Loran)
Loran-B/Loran-D
Differential Loran
Chaika/Chaika (Seagull) System/Chayka*
Cyclan
Cytac
Gee

Gee Hyperbolic System/Gee System
QH

3) Decca
General Note
Decca
Decca Navigator/Decca System/Decca Navigation System
QM
Decca Hi-Fix
Delrac
Dectra

4) Consol
Consol
Consol System
Consolan
Sonne
Consol (Sonne)
Sonne/Consol
Sonne (Sun)
Sonne (Consol)
Mond (Moon)/Stern (Star)

5) Omega
Omega
Omega/VLF//Omega/VLF Navigation System
Omega/NCS System
Omega System/Omega Navigation System
Differential-Omega
Omega/Loran C
Omega Global Navigation

6) Miscellaneous Hyperbolic Aids
Eureka/Rebecca-Eurkea/Rebecca/Eureka/Rebecca-Eureka
Distance Measuring System
Lorac
Navaglobe-Navarho
Navaglobe/Navaglobe System
Navarho System

Navarho-H, HH, RHO
Post Office Position Indicator (POPI)/POPI (Post Office Position Indicator)/P.O.P.I.
Raydist
Radio-Mailles System
Radio-Web/Radio-Mesh
Radio Mesh System (Radio-Mailles)
Radux
Radux-Omega
Rana
Toran

d) Satellites Navaids

1) GPS

(a) Overarching Terms
GPS, Global Positioning Systems
General Note I, II
GPS
GPS System
Global Positioning System
Global Positioning System (GPS)
GPS, Global Positioning System

(b) Specialized & Composite Terms
Cat II/III GPS
Global Positioning Satellites
GPS/Glonass/GPS-Glonass
GPS (Global Positioning System) Satellite-Based
Navigation System
Global Positioning System
GPS*
Standard Positioning Service (SPS)
Precise Positioning Service (PPS)
Maritime GPS*
Nationwide DGPS (NDGPS)*
RAIM/(RAIM)*
GPS/LAAS*

GPS/RAIM
GPS/WAAS*

(c) Navstar GPS

Navstar (Navigation System with Timing & Ranging)
Navstar
Navstar System
Navstar Global Positioning System/Navstar Global Positioning System (GPS)
Navstar GPS
Navstar-GPS
Navstar/GPS
Navstar Satellites
Global Positioning System (Navstar)

(d) Glonass

Glonass/Glonass (Global Navigation Satellite System)
Glonass, Global Orbiting Navigation Satellite System
Global Orbiting Navigation Satellite System (Glonass)*

2) Augmentation GPS

(a) DGPS

Differential GPS
DGPS
Standard Positioning Service (SPS)
Precise Positioning Service (PPS)
Differential GPS (DGPS)
DGPS System
Differential Global Positioning System/Differential Global Positioning Systems (DGPS)
DGPS Landing System/Special Category I DGPS Landing System/DGPS Special Category Landing System
DGPS Ground Reference System
DGPS Ground Station
Aeronautical-DGPS
GPS Differential Correction (dGPS)
DGPS/INS
DLoran-C*/Differential Loran-C*

Helicopter-Borne DGPS System
Intelligent Small Area DGPS
Augmentation to GPS*
Satellite-Based Augmentation System*
Special Category I Differential GPS (SCAT-I DGPS)*
Category I Ground Based Augmentation System (GBAS)*
NGPS*

(b) WAAS & LAAS Augmentation

LAAS
LAAS Cat I*
Local Area Augmentation System (LAAS)
LADGPS
SADGPS
Satellite Navigation Project Wide Area Augmentation System*
Wide Area Augmentation System (WAAS)/Wide-Area Augmentation System (WAAS)*
WADGNSS*
Wide-Augmentation Differential GNSS*
WADGPS
WAAS
WAAS*
Functionalism Verification System Phase 1, Phase 2
WAAS Geo Communication Satellite*
W.A.A.S.
WAAS GEO*
WAD*
WAS
Wide-area Ground Reference Stations (WRS)*
Wide-area Master Station (WMS)*

(c) GNSS

Global Navigation Satellite System (GNSS)
GLS (GNSS Landing System)*
GNSS

GNSS, Global Navigation Satellite System
GNSS (Global Navigation Satellite System)
GNSS Landing System (GLS)*
GNSS-1
GNSS-2
DGNSS*
DGNSS, Differential Global Navigation Satellite System*
Differential GNSS System/Differential GNSS (DGNSS)*
Cat II/III GNSS Approaches
GNSS-Based Operating System
Global Satellite System for Navigation*
Loran GNSS (LOGIC)*
Precise GNSS*/Conventional GNSS*
Radiobeacon DGNSS*

(d) Other Satellite Navigational Systems

(1) Satellite Navigation Terms

ARGOS System (Advance Reserch & Global Observation Satellite)*
Automatic Identification System*
ECDIS*
European Geostationary Navigation Overlay System*/EGNOS*
Eurofix*
EUTELTRACS*
Geostationary Overlap System*
GBAS*
Navigation Satellite System
Navsat
Precision Approach System*
Satcom//Satcom/Satnav
Satellite Navigation
Satellite-Assisted Navigation (GNSS/GPS)
Satellite-Based Navigation System*/Satellite-Based System*
Satellite Landing System

Satellite Navigation
Satellite Navigation System
Satellite Positioning System
Satellite System
Spaced-Based Navigation & Position System

(2) Transit & US Navy System

General Note
US Navy Navigation Satellite System
US Navy System
NNSS (Navy Navigation Satellite System)/Navy Navigation Satellite System (NNSS)
Transit
Transit System
US Transit
US Transit System

(3) Miscellaneous Systems

Cellular Communication Network*
Cospos-Sarsat*
Datatrack*
Defense Navigation Satellite System (DNSS)
Digital TV Network*
Galileo*
Geostar/Locstar
Geostat*
Geostationary Earth Orbit Station Navigation (GEO)*
Granas
Integrated Global Surveillance & Guidance System (IGSAGS)
Starfix/Starfix Positioning System
Timation
Tsikada/Cicada*
TSPI System
Inmarsat Satellite
Inmarsat-A System
Inmarsat-1, -2, -3 Satellite

General Note
IOR, Inmarsat III Satellites
IOR Satellites
Artemis Satellites
General Note
MSAS*
MSAS, Japan Multifunction Transportation Satellite (MTSAT)*
MT Sat
MT Sat-1, -2
Mtsat System
Mtsat Satellites
General Note
Omnistar*
Sar System*

4E4 Intercategory Group: Beacons

a) Nondirectional Beacons
NDB Navigation
Non-Directional Beacon
Non-Directional Beacon (NDB)
NDB Ground-Based System
Nondirectional Radio Beacon (NDB)*
Non-Directional Radio Beacon
NDB
NDB (L/MF Non-Directional Radio Beacon)
NDB, Non-Directional Radio Beacon
NDB (Non-Directional Beacon)
NDB, Non-Directional Beacon
Nondirectional Beacon (NDB)
Non-Directional Radio Beacon (NDB)
Non-Directive Marker*
L-F Markers
Low-Frequency Nondirectional Beacon
Low Frequency Non-Directional Beacon
Low -& Medium-Frequency Nondirectional Radio Beacon

Low-Power Radio Marker Beacon*
LF/MF/ NDB (Non-Directional Radio Beacon)
LF/MF NDB
L/MF Non-Directional Radio Beacon
Compass Locator
Homer
Low & Medium Frequency Non-Directional Radio Beacon
Aeronautical Nondirectional Beacon/Aeronautical Non-Directional Beacon
Aeronautical Nondirectional Beacon (Non-ILS)
Aeronautical Radiobeacons
ILS Nondirectional Beacon (NDB)/ILS-Associated Nondirectional Beacon

b) Marks, Markers, Beacons
General Note
Beacon
Beacons for Navigation*
Beacon Station
Beacon Transmitters for Fixed Course & Long-Range Navigation*
Beacon Transmitting Station*
Directional Radio Beacon
Directive Beacon*
En-Route VHF Marker Beacons (75 MHz)
Fan-Type Marker
Fan Marker
Fan Marker Beacon
Fan Marker (FM)
Fixed Non-Directive Marine Beacon*
Loth System of Rotating Beacons*/Loth System of Twin Rotating Beacons*
Low Frequency Nondirectional Homing Beacon
Low-Powered Fan Marker/Low-Power Version of the Fan Marker
"M" Marker
Marconi Rotating Beam Transmitter*
Marconi Ultra-Short Wave Approach Beacon*

Marine Radio Beacon*
Maritime Radio Beacon System*
Marker
Marker Beacon
Marker Beacon (Mkr)
Marker Beacon, 75 MHz
Marker Station
Navigational Beacon*
Nondirectional Radio Marker Station
Non-Directive Marine Beacon*
Radio Beacon
Radio Beacon & Fog Signals*
Radio Beacon Station
Radio Beacon System*
Radiobeacon Service*
Radio Marker
Radio Marker Beacon/Radio-Marker Beacon
Radio-Marker-Beacon Station
R.A.F. Directive Transmitter or Fordness Experimental Rotating Beacon*
Rotating Beacon
Rotating Beacon Transmitter*
Rotating Beacon Wireless Transmitter*
Rotating Directive Beacon*
75-mc Fan Marker
75-mc Marker Station
Station Location Marker
Ultra-High-Frequency Radio Fan Marker
Ultra-Short Wave Rotating Beacon
Vertical Marker Beacon
Very-High-Frequency Course Marker
Very-High-Frequency Marker
VHF Marker Beacon
V-H-F Markers
Z-Beacons

Z Marker/Z-Marker
Z Marker Beacon

c) Miscellaneous Terms

Adcock System*
Aerodrome Direction Finding*
Aicardi System*
Aircraft Ground D.F. Station*
Coastal D.F. Service*
Closed Loop Coastal Direction-Finding*
D.F. Stations*
Direction & Position Finding*
Direction-Finding Beacons/Direction Finding Beacon/DF Beacon/Omnidirectional DF Beacon
Direction-Finding Station*
Double Modulation System*
Fixed Spaced Frames*
Four Course Beacon*
Four-Course Double Modulation System*
Ground-Based Doppler Direction Finding*
Ground D/F Station
Ground Station D.F.*
Marconi-Adcock Direction Finder Type D.F. G. 12 (Shielded "U" Type Aerial)*
Marconi Ground Station Direction Finding Type D.F. G. 10*
Marconi Portable Short-Wave D.F. Type D.F. G. 15*
QTQ Signals*
Rotating Loop Direction Finding*
Rotating Spaced Frame Systems*
Short D.F. Stations*
Short Ground Station*/Shore or Aircraft Ground Station*
Short-Wave Direction Finding*
Short-Wave Ground Direction Finding Stations*
Spaced Frame Short-Wave Direction Finder (Eckersley-Marconi)*
Standard Telephones & Cables, Ltd. Type R.S. Adcock Direction-Finding*

Telefunken Ground Ray Short-Wave Portable D.F. Type P 57N*
Telefunken Long- & Medium-Wave Portable D.F. Type 393N*
Triple Modulation 12-Course Equi-Signal Beacon*
UHF/VHF Doppler Direction Finders*
Wireless Directon Finding
Wireless Beacon Landing System
Wireless Beacon Transmitter*
Wireless Position Finding*
W/T Direction Finding Station*
W/T Fog Signal Transmitter*

Notes

New Terms:

R Keen, 1938

Adcock System
Aerodrome Direction Finding
Aicardi System
Aircraft Approach & Landing Systems
Aircraft Ground D.F. Station
Aural Radio Range Beacons
Baumann & Ettinger System of Blind Landing
Beacons for Navigation
Beacon Transmitting Station
Beacon Method of Landing

Beacon Transmitters for Fixed Course & Long-Range Navigation
Bellini-Tosi Closed Loop System/Bellini-Tosi Loop Aerial System
Bellini-Tosi Radiophare
Bounday Beacon
Boundary Marker
Bureau of Standards System
Closed Loop Coastal Direction Finding

Coastal D.F. Service
D.F. Landing
D.F. Stations
Direction & Position Finding
Direction-Finding Stations
Directive Beacon
Double Modulation System
Dunmore Ultra-Short Wave Landing Beam
Equi-Signal Approach System
Equi-Signal Beacon
Fixed Course Beacon
Fixed Non-Directive Marine Beacons
Fixed Spaced Frames
Four-Course Double Modulation Beacon
Four-Course Beacon
Ground Ray D.F./Short-Wave Ground Ray D.F.
Ground Station D.F.
Hegenberger Systems
Instrument Methods of Approach & Landing
Landing Beam Transmitter
Lorenz Thick Weather Landing System
Lorenz Beacon
Lorenz Glide Path & Marker Beacon
Lorenz Main Beacon
Lorenz Outer Beacon Transmitter
Lorenz System
Loth System of Rotating Beacons/Loth System of Twin Rotating Beacons
Marconi-Adcock Direction Finder Type D.F. G. 12 (Shielded "U" Type Aerial)
Marconi Eight Channel Bellini-Tosi System
Marconi Ground Station Direction Finding Type D.F. G. 10
Marconi Medium Wave Equi-Signal Approach Beacon
Marconi Portable Short-Wave D.F. Type D.F.G. 15
Marconi Rotating Beam Transmitter
Marconi Ultra-Short Wave Approach Beacon
Marconi Ultra-Short Wave Rotating Beacon Transmitter

Marine Radio Beacons
Marker "Beacons"
Marker Signals
Multi-Channel Marconi Bellini-Tosi (or Adcock) System
Navigational Beacon
Non-Directive Marine Beacon
Outer Marker
QTQ Signals
Penetration Method of Landing
Radiobeacon Service
Radio Beacons & Fog Signals
Radio Range Beacon System
Radio Range Equi-Signal Beacon System
R.A.F. Directive Transmitter or Fordness Experimental Rotating Beacon
Rotating Beacon Transmitter
Rotating Beacon Wireless Transmitter
Rotating Directive Beacon
Rotating Loop Direction Finding
Rotating Spaced Frame Systems
Runway Localizing Beacon
Runway Localizing Transmitter
Scheller's Course-Setter
Scheller's (Lorenz) Equi-Signal Course-Setter
Shore Ground Station/Shore or Aircraft Ground Station
Short D.F. Stations
Short-Wave Direction Finding
Short-Wave Ground Direction Finding Stations
Spaced Frame Short-Wave Direction Finder (Eckersley-Marconi)
Standard Telephones & Cables, Ltd. Type R.S. Adcock Direction-Finding
Symmetrical Four-Course Equi-Signal Beacon
"System of Approach & Landing"
Telefunken Ground Ray Short-Wave Portable D.F. Type P 57 N
Telefunken Long- & Medium-Wave Portable D.F. Type 393N
Triple Modulation 12-Course Equi-Signal Beacon
Transmitter Landing Beam Transmitter

Ultra-Short Wave Approach & Landing Beacon
Ultra-Short Wave Marker
Ultra-Short Wave Rotating Beacon
U.S. Army Air Corps Blind Landing System
U.S. Bureau of Standards Blind Landing System
U.S. Radio Range Beacon System
U.S.W. Approach Beacons
U.S.W. Glidepath
Warning Signals
Wireless Beacon Transmitter
Wireless Position Finding
Wireless Aids
W/T Direction Finding Station
W/T Fog Signal Transmitter
Zeppelin-Telefunken System
"ZZ" Method of Landing

AIM 2004

ALD Airport Signs
Attitude Heading Reference System (AHRS)
Category I Ground Based Augmentation System (GBAS)
Category II ILS
Differential GPS
    Standard Positioning Service (SPS)
    Precise Positioning Service (PPS)
Dot Matrix Runway Distance Remaining Sign
European Geostationary Navigation Overlay System/EGNOS
FAA Instrument Landing System
Glideslope
(GNSS Landing System) (GLS)
GNSS Landing System (GLS)
GPS/LAAS
GPS/WAAS

Holding Position for Instrument Landing System/Precision Obstacle Free Zone (POFZ)
Holding Position Sign for ILS Critical Area/POFZ Boundary
HVORTAC
ILS Critical Area Boundary Sign
ILS Critical Area/POFZ Boundary & Cat II/III Operations Sign
(ILS)/DME
ILS/DME
Inertial Reference Unit (IRU)
LDA/Glidescope
LDME
(LNAV/VNAV)
(Loc)/DME
Loc/DME
Localizer Type Directional Aid (LDA)
MSAS, Japan Multifunctioning Transportation Satellite (MTSAT) Satellite-Based Augmentation System
National DGPS (NDGPS)
One-Half Distance Remaining Signs
Precision Approach System
(RAIM)
RNAV System
Simplified Directional Facility (SDF)
Marker Beacon
Outer Marker
Middle Marker
Inner Marker
Nondirectional Beacon (NDB)
Special Category I Differential GPS (SCAT-I DGPS)
Surface Painted Apron Entrance Point Signs
Surface Painted Gate Identification Signs
Taxiway Ending Marker Sign
Transponder Landing System (TLS)
TVOR
VOR/Distance Measuring Equipment (DME) System of Air Navigation

WAAS Geo
Wide-Area Master Station
Wide-Area Ground Station Reference Station/WRS

Breniman 1970

Ground-Based Doppler Direction Finding
Loop Type Range
Low-Power Radio Marker Beacon
Marine Radio Beacons
Non-Directive Marker
UHF/VHF Doppler Direction Finder

CAA 1937
MRA or MRL Range

Casabona 1959

Null-Type Glide Slope

FAA FTP 2000

Geosat
Geostationary Earth Orbit (GEO) Satellite
W-A Marker System (WMS)
W-A Reference System (WRS)
WAAS Functional Verification System (FVS)
WAAS Geo Communication Satellite
WAAS
Phase 1
Phase 2

Wide-Area Augmentation System (WAAS)

H-W 2003

Area-based Systems
ARGOS System (Advance Research & Global Observation Satellite)
Augmentation to GPS
Automatic Identification System H-W
Cellular Communication Network
Chayka
Cicada
Conventional GPS
COSPOS-SARSAT
Datatrack
DGNSS
Differential GNSS (DGNSS)
Differential GPS
    Standard Positioning Service (SPS)
    Precise Positioning Service (PPS)
Differential Loran-C
Digital TV Network
Distance Measuring Equipment [without DME of Database]
DLoran-C
ECDIS
EGNOS
Eurofix
Euteltracs European Telecommunication & Tracking System
Galileo
GBAS
GPS
    Standard Positioning Service (SPS)
    Precise Positioning Service (PPS)
Hyperbolic Radio Navigation
ILS Cat I, -II, -III

LAAS Cat I
Loran GNSS (LOGIC)
Maritime GPS
Maritime Radio Beacon System
Marker Beacon
    Outer Marker
    Middle Marker
    Inner Marker
MSAS
NGPS
Omnistar
Precise GNSS
SAR Beacon
SAR System
Satellite-Based Augmentation System (SBAS)
Satellite-Based Navigation System
Satellite-Based System
WAD
WADGNSS
Wide-Area Augmentation Differential GNSS

ICAO Journal November 1997

Global Satellite System for Navigation

T & C 2001

Global Orbiting Navigation Satellite System (GLONASS)

Mola 2003

Army Air Forces Instrument Approach System Signal Set 51

Course Indicator
Landing Beam
Microwave System

Ward 1998

DGNSS Differential Global Navigation Satellite System
Fixing System
Geostationary Overlay System Ward
IMO Worldwide Radionavigation System
Radiobeacon GNSS
Radiobeacon System

Young JN 1994

Radio Location & Approach Aids

Differences Between Index & Text:

Short-Range Navigational Aids not in Text; term deleted.
Null-Type Glide Slope not in Text but now added.
Back Course Marker Beacon duplicated in Text; one entry deleted.
Microwave Landing Systems lacks title for first segment in Index: Principal Terms; now added.
Azimuth Station and adjoining terms prefaced by Components of MLS include in Text; now added to Index.
Standard Beacon altered to Standard Beam which is correct.
Low/Medium and adjoining terms prefaced by Radio Range by Frequency in Text; now added to Index. That phrase followed by General Note in Text; now added to Index.
Precision Distance ... accompanied by MLS Precision Distance Measurement Equipment (DME/P) in Text; now added to Index
Precision Distance ... precedes DME/N in Text; Index now conforms to that arrangement.

Loran A/Loran-A/Loran-C incorrect in Database; now revised.
Loran-C/Loran A/Loran-C System See previous entry.
Consol (Sonne) and adjoining terms have different configuration in Text than in Index.
GPS, Global Positioning Systems followed by General Note I, II in Text; Index lacks Note but needed for Index.
DGPS duplicate entries in Text; one deleted.
Global Satellite System for Navigation not in Text; to be added.
Satcom/Satcom/Satnav: double // added between first two terms.
Sat Navigation is given as Satellite Navigation in Text; change needed in Index.
Satellite Navigation given twice in Text; one should be Satellite Navigator.
General Notes for Inmarsat- I .../Artemis Satellites/Mtsat require indenting for Text and Index.

Differences Between Classifications & Database

This coverage consists of a general note with specific examples.

Overarching terms are similar though not identical. Final Approach & Landing Aids in the Part H Classification becomes Aids to Final Approach & Landing Aids in the Database. En Route Aids in the Database (with several major subdivisions) becomes two groups in Classifications: En Route Short Distance Aids, and En Route Hyperbolic Aids. Satellite Navigational Aids in the Classifications becomes Satellite Navaids for the Database.

The Classification include basic and current or near-current forms while the Database has far more entries including many historical forms. There are no variant classifications.

In most instances the classifications in the modal study and in the classification monograph are similar or nearly identical. However, Part G (1994) offers a very different form. It is based on a systems perspective. And entries follow from that perspective. Part H Classification has more significance and lasting value.

4F Signs, Markings, Markers & Marks

4F1 General Notes & Overarching Terms

General Notes I, II, III, IV
Air Marking
Airmarking
Airport Marking Aids
Airport Marking Aids & Signs
Airport Pavement Markings & Signs
Day Markings
Day Marking Aids
Day Marking Devices
Daytime Markings
Marking Aids
Surface Markings & Aids
Uniform System of Ground Marks

Aids
Airport Visual Aids
Ground Aids
Visual Aids
Visual Ground Aids
Visual-Aids System/Visual Aids System

Airport Marking & Lighting
Air Navigation Lighting & Marking Aids
Lighting/Marking
Lighting & Marking
Lighting & Marking System
Marking & Lighting

4F2 Marks and Markers

Marks
Markers
Above Ground Marker
Aiming Marker for Turbojet Operations
Air-Mark/Air Mark

Air Marker/Air-Marker/Airmarker
Air Taxiway Marker
Aircraft Arresting Marker
Approach Day Marker
Aproach Day Marking System
Barrier Engagement Marker/Hook Cable Markers
Bidirectional Reflective Markers
Boundary Markers
Centerline Markers
Circle Markers
Cone Markers
Corner Marker
Cylindrical Marker
Cylindrical Raised Marker
Day Marker
Day Markers for Snow-Covered Runway
Distance Marker
Distance-to-Go Marker/Distance to Go Marker
Edge Marker/Edgemarker
Edge Markers for Snow-Covered Runways
Elevated Markers
Elevated Taxiway Edge Marker
FATO Edge Marker
1500-Ft Marker/Runway 1500-Ft Marker
Fixed Distance Marker
Flag Marker
Flush-Type Marker
Half Way Marker
Helicopter Approach Marker
Hold Line Markers
Identification Markers
Illuminated Day and Night Marker
In Ground Corner Marker
In-Ground Marker
In-Ground Edge Marker/In-Ground Marker

Landscape Marker
Limed Marker
Markers and Markings for Snow-Covered Runways
Marker Circle
"Manmade" Markers
Markers, Retroreflective
Natural Above Ground Markers
Non-Snowplowable Markers
RBI Markers/RBI Retroreflective Markers
Reflecting Marker
Reflecting Distance Marker
Reflective Marker
Reflectorized Marker
Retroreflective Airport Marker
Retroreflective Markers
Retroreflective Runway & Identification Markers
Runway Distance Marker
Vertical Runway Distance Marker
Painted Highway Marker
Plane Marker
Power Line Obstruction Marker
Raised Edge Marker
Roof Town Marker
Runway Marker
Runway Touchdown Zone Marker
Safe Heading Marker Board
Segmented Circle Marker
Segmented Circle Marker System
    Segmented Circle
    Indicators
    Closed Field Signal
    System of Airport Marking
Segmented Markers
Semiflush Marker/Semiflush for Centerline Marking/Semiflush
    Retroreflective Marker

Snowplowable Marker
Spherical Marker
Standard Air Marker
Standard Boundary Marker
Standard Marker
Stopway Edge Marker
Stopway Day Marker
Supplemental Reflective Markers/Supplementary Markers
Surface Painted Apron Entrance Point Signs
Surface Painted Gate Identification Signs
System of Approach Day Markers
Taxiway Centre Line Markes/Taxiway Centerline Markers
Taxiway Edge Markers
Taxiway Ending Marker
Taxiway Holding Post/Taxiway Holding Post Marker
Taxiway Route Edge Marker
Threshold Marker
Type I-VI Marker
    General Note
    Bidirectional Reflective Marker
    Reflective Marker/Marker
Style A-D Markers
Undirectional L-853 Type Iv Marker
Unserviceability Boards
Unserviceability Cones
Unserviceability Flags
Unserviceability Markers
Unserviceability Marker Boards
Unpaved Runway Edge Markers
Unpaved Taxiway Edge Markers
VOR Check-Point Marker

4F3 Other Aids

a) Reflective Aids
    General Note
    Centerline Reflector

Edge Reflectors
Elevated Edge Reflectors
Elevated Reflectors
Elevated Taxiway Edge Reflectors
Marker, Retroreflective
On-Pavement Reflector
"Passive Lighting"
General Note
Helicopter Approach Markers
Helicopter Markers
Identification Markers
RBI Reflectors
Retroreflective Aids
Retroreflective Identification Markers
Retroreflective Markers
Retroreflective Runway & Identification Markers
Runway Reflectors
Reflector, Taxiway, Strip & Runway
Reflector
Retroreflective Pavement Marker
Retro-Reflective Markings/Retro-Reflective Aerodrome Markings
Retroreflectives
Runway & Taxiway Reflective Markers/Runway & Taxiway
Retroreflective Markers
Runway Centerline Reflectors
Runway/Taxiway Reflectors
Taxiway Centerline Reflector
Taxiway Edge Reflectors

b) Signal Panel, Signal Areas, Indicators, Other Objects & Miscellaney
Checkerboard Patterns
Checkerboard Markings
Compass Callibration Pad
Cone
Cones Marker
Flag

Ground Signal Panels
Ground Signal Panel & Signal Areas
Guidance Sign Boards
Half Drum
Indicator
Landing Direction Indicator
Signal Area Panel
Signal Panel
Taxiway Edge Reflector
Unserviceability Boards
Unserviceability Cone Marker/Unserviceability Cone
Unserviceability Flags
Unserviceability Marker Boards
Vee Boards
Wind Cones
Wind Direction Indicator
Windsock
Wind Tees/Lighted Wind Tee

4F4 Signs & Markings
General Note
a) Overarching Terms
Airfield Markings
Airport Markings
Airport Pavement Markings
Markings
Markings for Paved Runways & Taxiways
Markings for Surface
Paint Markings
Painted Markings
Pavement Markings
Runway & Taxiway Markings
Standard Markings
Surface Markings
Surface Markings & Markers

b) Runway Markings

Aim Point Markings
Aiming Point Markings
All-Weather Runway Markings
Basic Markings
Centerline Markings
Centre-Line Markings/Centre Line Markings
Chevron/Chevron Markings
Conflicting Runway Markings
Day Marking of Snow-Covered Runways
Instrument Runway Markings
Landing Zone Markings
Longitudinal Runway Markings
Markings for Unpaved Markings
Markings of Displaced Thresholds/Displaced Threshold Markings
Markings of Paved Areas
Marking of Snow-Covered Runways
Non-Precision Instrument Runway Markings/Nonprecision Instrument Runways
Nonprecision Runway & Visual Runway Markings
Painted Numbers
Painted Runway Markings
Paved Runway Day Markings/Paved Runway Markings
Precision Instrument Runway Markings
Relocated Threshold Markings
Runway - & Taxiway - Surface Markings
Runway Central Circle Markings
Runway Centerline Markings/Runway Centre Line Marking
Runway Day Markings
Runway Designation Markings/Designation Markings
Runway Direction Numbers
Runway Edge Markings
Runway End Markings
Runway End-Zone Markings
Runway Markings
Runway Mid-Point Markings
Runway Numbers
Runway Numerals & Letters/Runway Designation Numerals & Letters
Runway Shoulder Markings
Runway Side Stripes Markings/Side Stripes Markings/Side Stripes
Runway Surface Markings
Runway Threshold Markings/Threshold Markings
Runway Threshold Stripes
Touchdown Zone Markings/Touchdown-Zone Markings
Threshold Markings
Unpaved Runway Markings
Visual & Nonprecision Markings
Visual Runway Markings

c) Taxiway Markings
Aids to Taxying
Day Marking-Taxying Aids
Painted Hold Position Markings
Paved Taxiway Marking/Paved Taxiway Day Markings
Taxiway Centerline Markings/Taxiway Centre Line Markings
Taxiway Continuous Markings/Taxiway Dashed Markings
Taxiway Day Markings
Taxiway Edge Markings
Taxiway Holding Line Markings
Taxiway Holding Position Markings
Taxi-Holding Position Markings
Taxiway Indentification Markings
Taxiway Intersection Holdline Markings
Taxiway Intersection Markings
Taxiway Markings
Taxiway Route Markings
Taxiway Side Stripe Markings
Taxiway Shoulder Markings
Unpaved Taxiway Markings

d) Markings Other Than Overarching, Runway, Taxiway, Special Categories
Approach Day Marking System

Apron & Holding Pad Shoulder Marking
Blast Pad & Over-run or Stopway Marking
Closed Markings
Closed Runway & Taxiway Markings/Closed or Temporarily Closed Runway & Taxiway Markings
Centerline & Edge Markers
Continuous Markings/Dashed Markings
Critical Area Hold Line Markings
Fixed Distance Marking
Geographic Position Marking
Hanger Roof Marking/Roof Marking
Holding Position Marking
ILS Holding Position Markings
Landing Direction Indicator
Longitudinal Markings
Markings & Lighting of Closed or Hazardous Areas on Airport
Marking for Arresting Gear /Pendent Cable Marking/Disc Warning Marker
Marking for Blast Pad or Stopway or Taxiway Preceding a Displaced Threshold
Marking Displaced Thresholds, Blast Pad & Stopways
Markings for Large Aircraft Parking Positions
Markings of Hazardous Areas
Marking of Temporarily Relocated Thresholds
Marking of Unserviceability Portions of the Movement Area
Non-Movement Area Boundary Marking
Off-Airport Marking/On-Airport Markings
Painted Centerline/Edge Markings
Runway Transverse Stripes/Transverse Stripes
Seaplane Base Markings
Segmented Circle/Segmented Circle Marking System
Striated Markings
Stripes
Roadway Edge Stripes/Zipper Markings
Threshold Stripes

Surface Movement Guidance Control System (SMGGS)
Taxiway/Runway Intersection Markings
Temporary Markings
Transverse Markings
Undershoot & Overrun Area Markings
Unserviceability Markings
Vehicle Roadway Markings
VOR Aerodrome Check-Point Markings
VOR Check Points/VOR Aerodrome Check-Points
VOR Checkpoint Markings/VOR Checkpoint Receiver Markings/VOR Receiver Checkpoint Markings
Ground Receiver Checkpoint Markings
Check-Point Markings

e) Special Category
1) Heliport & Vertiport Markings
Aiming Point Markings
Apron Makings
Boundary Markings
Centerline Stripes
Cylindrical Marker for Hover Taxi Route Edge Marker
Dashed FATO Markings
Double Line Edges Stripes
Equipment/Object Markings
FATO Markings
Final Approach & Take-off Area Markings or Marker
Final Approach & Take-Off Designation Markings
Helideck Obstacle-Free Sector Markings
Heliport "H" Marking
Heliport Landing Aids
Heliport Markings
Heliport Marking & Lighting
Heliport Lighting & Marking
Heliport Visual Aids
Heliport Guidance, Position & Other Markings/Guidance or Position Markings/Guidance & Positioning Markings

Heliport Identification Markings
Heliport Name Markings
Helipad & Helideck Markings
Hospital Markings
Hospital Heliport Markings
Identification Markings
Standard Heliport Markings
Hospital Heliport Markings
In-Ground FATO Corner/Edge Markings
In-Ground Marking
Landing Direction Arrow
Large Marker for Air Taxing Centerline
Marking of Closed Heliport
Maximum Allowable Mass Marking
Painted H Marking
Painted Markings
Park Position Markings
Standard Heliport Marking Symbol
    Heliport Markers & Markings
    Heliport with Markers & Markers
Taxi Route Edge Markers
Taxi Route & Taxiway Markings
Taxi Route Markings
Taxiway Markings
Touchdown & Landing Area Markings
Touchdown Markings
Touchdown Pad Boundary Markings
Weight Limit Marking
Winching Area Marking
Wire Marking

Vertiport Markings
    In-Ground Edge Markers
    Raised Markers
    Painted Line

    Centerlines
    Taxiway Markings
    Raised Markers II
    Symbols
2) Holding Position Markings
    Holding Position Markings
    Holding Position Markings for Instrument Landing Systems (ILS)/Holding Position Markings for Instrument Landing Systems
    Holding Position Markings for Instrument Landing System/Microwave Landing System (ILS/MLS) Critical Areas/Holding Position Markings: ILS Critical Areas/Holding Position Markings for ILs (or MLS) Critical Area
    Holding Position Markings for Instrument Landing Systems/Precision Free Zone (POFZ)*
    Holding Position Markings for Taxiway/Taxiway Intersections/Holding Position Markings: Taxiway/Taxiway Holding Position Markings on Taxiway
    Holding Position Markings on Runway
    Holding Position for Runways/Runway Intersection
    Holding Position Markings for Runway/Taxiway Intersections
    Intermediate Holding Position Markings
    Intermediate Holding Position Markings for Taxiway/Taxiway Intersections
    Road-Hold Position
    Runway Holding Position Markings
    Runway Holding Position Markings on Taxiway
    Runway Holding Position Markings on Runways
    Runway-Holding Position Markings
    Taxi-Holding Position Markings
    Taxiways Located in Runway Approach Areas (Markings)
3) Obstruction Markings
    Day Marking of Obstruction
    Flags/Flag Marker
    Markers [w/i Context of Obstructions]

Markings [w/i Context of Obstruction Markings]
Navigational Boundary & Obstruction Marker
Obstruction Identification
Obstruction Lighting & Marking
Obstruction Marking
Obstruction Markings & Lighting
Obstacle Markings
Painted Cones for Day Markings
Patterns
Solid Patterns
Checkerboard Patterns
Alternate Bands
Teardrop Patterns
Spherical Markers
Visual Aids for Denoting Obstacles

4) Apron Markings
Apron Markings
Guide Lines
Lead-Out Lines
Lead-In Lines
Turning Lines
Simple Lead-In Lines
Straight-Lead-In Lines
Simple Nose-Wheel Lead-In Line
Simple Nose-Wheel Lead-Out Line
Wing Tip Clearance Lines
Towing Lines
Equipment Limit Lines
Passenger Path Lines
Reference Bars
Turn Bars
Stop Line

4F5 Signs

a) Overarching Terms
Signs

Sign System
Airfield Sign System
Airport Sign
Airport Sign System
Airside Sign System
Airside Signage
Airway Signs
Signing Aids
Sign Array

b) Signs Other Than Runway & Taxiway Types
General Note
Aerodrome Identification Sign
Airfield Directional Signs/Runway & Taxiway Directional Signs
ALD Airport Signs* [Lighted]
Cautionary Signs
Convenience Signs
Direction Signs
Direction Signs for Runway Exit
Direction Signs for Runway Exit/Direction Sign Array for Simple Intersections
Distance to go Sign
Dot Matrix Runway Distance Remaining Sign* [Lighted]
Entrance-Exit Signs
Exit Sign
ILS Critical Boundary Sign/ILS Critical Area Boundary Sign*
ILS Critical Area/POFZ Boundary & Cat II/III Operation Sign*
Internally Lighted Signs/Externally Lighted Sign
Intersection Signs
No Entry Signs
One-Half Distance Remaining Signs*
Signs Prohibiting Aircraft Entry into an Area
Special Purpose Sign
Station Sign
Stop Signs
Unlighted Signs

VOR Aerodrome Check-Point Sign

c) Runway Signs
- Runway Approach Area Boundary Sign
- Runway Approach Area Holding Position Sign
- Runway Boundary Sign
- Runway Distance Remaining Signs/Runway Distance-Remaining Signs
- Runway Exit Signs
- Runway Holding Position Sign
- Runway Intersection Sign
- Runway Location Sign
- Runway Marking Sign
- Runway Sign
- Runway Safety Area/OFZ & Runway Approach Area Boundary Signs

d) Taxiway Signs
- Non-Illuminated Taxiway Guidance Signs
- Signs, Taxiway Guidance/Signs, Guidance/Retroreflective Taxiway Guidance Signs
- Taxiway Direction & Location Signs
- Taxiway Direction Signs
- Taxiway Ending Marker Sign*
- Taxiway Identification Signs
- Taxiway Guidance Signs
- Taxiway Guidance Sign Systems
- Taxiway Location Signs
- Taxiway/Runway Intersection Signs
- Taxiway Sign
- Taxiway Sign System

e) Special Category: Holding Position Signs
- Category II Critical Areas Hold Line Sign/Category II Hold Line Sign
- Holding Position Sign
- Holding Position Sign at Beginning Takeoff Runway
- Holding Position Sign for Approach Areas

- Holding Position Sign for ILS Critical Area/ILS Holding Position Sign/ILS Critical Area Boundary Sign
- Holding Position Sign for ILS Critical Area/POFZ Boundary *
- Holding Position Sign for Taxiway/Runway Intersection/Holding Position Sign for Runway/Runway Intersection
- Holdline Sign
- Road-Holding Position Sign
- Runway-Holding Position Sign
- Cat I, II, III Holding Position Signs/Cat II Holding Position Sign/Cat II or III Holding Position Sign/Cat II and III Holding Position Signs

f) Signs-Others
- Destination Signs
  - Outboard Destination Signs
  - Inboard Desination Signs
- Surface Painted Signs
  - General Note
  - Surface Painted Taxiway Direction Sign
  - Surface Painted Location Sign
  - Surface Painted Holding Position Sign
  - Surface Painted Sign
  - Surface Painted Gates ID Sign
  - Surface Painted Apron Entrance Point Sign
  - Surface Painted Direction Signs
- Guidance Sign
- Information Sign
- Information Sign
- Informative Sign
- Location Sign
- Mandatory Instruction Sign
- Mandatory Sign
- Roadway Sign

Notes

New Terms: FAA

SAM 2004 (-1H, Ch 2)
Holding Position Markings for Instrument Landing System (ILS)/Precision Free Zone (POFZ)

SASS 2004 (-18D)
Holding Position Sign for ILS Critical Area/POFZ Bounday
ILS Critical Area Boundary Sign (-18C)
ILS Critical Area Boundary Sign/POFZ Boundary & Cat II/III Operation Sign

SRTS 2004)-44G)
ALD Airport Signs [Lighted]
Dot Matrix Runway Distance Remaining Sign [Lighted]
One-Half Runway Distance Remaining Sign
Taxiway Ending Marker Sign

Differences Between Index and Text of Database:

Marks & Markers presents a lengthly and undifferentiated appearance. Both Index and Text require a segmenting of entries.
Type I-VI Markers has a different configuration in text than that of index. General Note of Text omitted in Index but need to be added.
Unidirectional L-853 Type IVMarker listed as Type Iv in Index; now corrected.
Style A-D Markers in Text; add to Index
Unserviceability Cones/... Flags/... Marker Boards in Text but not in Index; added to this study.
Signal Panels, Signal Areas, etc. retained original formulation; proposed reformulation not implemented to date.
Continuous Markings/Dashed Markings: Dashed is Dashing in Text; change to Dashed.
Day Marking of Obstruction within Obstruction Markings rather than an entry in its own right in Text.

Heliport Guidance ... Guidance & Position Markings ing Index but secon word is Positioning in Text
Heliport Markers & Markings and Heliport with Markers and Markers: Different configuration in Text than in Index. Index lacked indentation; now corrected.
Holding Position Markings segment: numerous mispellings in Index; now corrected.
Holding Position Markings: Taxiway/Runway Holding Position ... . Runway replaced by second Taxiway in Text; Index corrected.
Obstruction Markings segment: mispellings in Index; now corrected.
Turning Lines in Text as part of Lead-In Lines; added to Index.

Differences Between Classifications and Database

Overarching terms are few and basic for Signs and Markings in Classifications. The Database, by contrast, has extensive terms.

Markings in Database are arranged by location (e.g. Runway, Taxiway) and some specical topics (e.g. Heliports) while the Classifications follow forms (e.g. longitudinal, transverse).

Marks and Markers ia a vast and undifferentiated mass of terms. The Classifications arrange these terms by types (e.g. elevated markers, low-elevations markers. Preliminary work on differention of terms in the Database has been undertaken.

Signs in Classification are relatively terse. Single forms are listed while those forms with variant forms are subsumed under basic morphological categories. The Classifications denote both signs and markings under the heading of marker. The Database does not follow this practice.

Variant classifications manifest an extensive expansion of terms. Runway and Taxiway are employed as distinguishing categories in contrast to the main classifications.

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Most sources for this study are to be found in the appropriate Bibliographies of the *Database* (Ii, Iii, Iiii, Iiv). However, some sources are new to this study, or to *T-M History* (Part J) 2002, or to titles of previously published studies in this Monograph Series. Titles from Part J are marked by the letter **J.**

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