

Ref:	NR/L2/SIG/11201 – Mod A17
Issue:	5
Date:	03/09/2011
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Level 2

Signalling Design: Module A17 -

Symbols for Plans and Sketches used in Signalling Applications

Endorsement and Authorisation

For endorsement and authorisation, please refer to NR/L2/SIG/11201

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Issue record

Issue	Date	Comments
4	June 2011	NR/L3/SIG/11004 incorporated into NR/L2/SIG/11201
5	03/09/2011	Amended references due to withdrawal of NR/L3/SIG/30018

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 03/09/2011.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 3 (Option Selection) to continue to comply with the Issue of any relevant Network Rail Standards current when GRIP Stage 3 was completed and not to comply with requirements contained herein, unless stipulated otherwise in the scope of this standard.

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1 Purpose

This standard, in support of [NR/L2/SIG/11201](#), defines the symbols for plans and sketches used in signalling applications, so that the correct information is always conveyed without ambiguity.

2 Scope

The standard applies to all signalling plans, scheme plans, location area plans, bonding plans, level crossing ground plans, operating notices, standards and instructions for use within the Railway Group. It incorporates the relevant symbols from British Standard [BS 376: Part 1](#): 1951. Symbols, whether drawn manually or generated by computed aided design (CAD) systems, should comply with this standard.

This standard does not apply to signalling control and display systems, which are covered by former railway group standard [GK/RT0025](#) (as mandated by [TI 157](#)) and [NR/L2/SIG/17504](#).

It does not apply to electrification plans, with the exception of bonding plans that include information from both electrification and signal engineering disciplines. Symbols for a.c. section diagrams are shown in [NR/L2/ELP/27500](#). Symbols for conductor rail plans are given on d.c. electrical track equipment drawing [RT/ETE/5/2/1](#); and for negative bonding plans on drawing [RT/ETE/5/3/1](#).

The standard does not apply to symbols for permanent way plans, which are shown in [NR/L2/TRK/2049](#). The symbols that identify signalling requirements to be shown on permanent way plans are given in [NR/L2/SIG/11752](#).

The standard does not specify what information should be shown in any particular type of signalling design document, which is defined in [NR/L2/SIG/11201](#).

3 Definitions

Definitions are provided in [NR/L2/SIG/11201/Appendix E](#).

4 Alterations to Existing Installations

This standard is applicable to new and redrawn plans. Its application should be considered when plans of existing installations are to be altered, provided that no confusion is likely to arise by the use of these symbols within design, installation, commissioning or maintenance activities.

The mixing of different symbol conventions on an individual plan is not permitted. Alterations to plans containing obsolete symbols should be dealt with either:

- by altering the plan using the former conventions or symbols; or
- by redrawing the plan in accordance with this standard.

5 General

Presentation and convention for plans is covered in [NR/L2/SIG/11201](#).

The plan symbols represent all trackside equipment in general use, but have been designed so that symbols may be combined where a single symbol does not adequately represent the complete apparatus (e.g. a semaphore shunt signal that is both power operated and floodlit).

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The symbols are shown relative to the track, which in this standard, is assumed to be the horizontal. On actual drawings the track may be drawn in other orientations, as necessary, and the symbols should be rotated accordingly.

Certain supplementary symbols, where the feature is provided consistently throughout the plan, need not be shown at each application but may be covered by a general note on the plan (e.g. the provision of signal post telephones at main signals capable of displaying a red aspect, or points requiring insulated soleplates). Any exceptions then require to be individually identified. Certain other features may be listed on the signal box notes in order to relieve congestion on the plan. Details are given in [NR/L2/SIG/11201](#)

Individual equipment should be further identified by means of the standard nomenclature specified in [GK/RT0009](#) and other Railway Group Standards, including [GK/RT0045](#) & [GK/RT0192](#) and company standards [NR/L2/SIG/11704](#). The nomenclature should be used consistently throughout an installation. See cross reference section

6 Symbols for Use on Signalling Layout Plans

The standard symbols for use on layout plans where the track is represented by a single line (e.g. signalling plans, scheme plans, location area plans and operating notices) are given in Appendix A.

Note that symbols depicting the normal aspect of signals should generally be used, with the exception of operating notices which should use variants of the symbols that do not depict normal aspects.

Additional engineering information necessary for location area plans is also identified.

The sizes shown are the optimum for a 1:500 scale drawing, but may also be used for smaller scales. These standard sizes may, however, be varied if necessary, provided the symbols remain readable.

The symbols are grouped as follows:

Appendix	
A.1	Signals and Indicators: colour light; semaphore; relationship to track; slots; signal controls; repeating; and indicators.
A.2	Lineside Signs: AWS; signalling; speed; and signal post.
A.3	Switches and Crossings: layouts; and control.
A.4	Track and Train Detection: general; track circuits; overlap limit; track circuit type identification; other train detectors; warning and protection systems; electrification; and additional information required on location area plans.
A.5	Other Apparatus: block instruments; electric token; bells; telephones; and plungers.
A.6	Level Crossings: gated; barrier; and miscellaneous.
A.7	Structures: signals; civil engineering; electrification; and signalling control points.

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A.8	CTRL: Symbols relevant to CTRL Interfaces
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7 Symbols for Use on Bonding Plans

The standard symbols for use on plans where the track is represented by a double line (e.g. bonding and track plans) are given in Appendix B.

The tables are divided to show the different requirements for non-electrified lines, a.c. electrified lines and d.c. electrified lines. Those items of equipment that it is not considered necessary to depict on bonding plans are also identified.

The sizes shown are the optimum for a 1:500 scale drawing, but may also be used for smaller scales. These standard sizes may, however, be varied if necessary, provided the symbols remain readable.

The symbols are grouped as follows:

Appendix	
B.1	Signals and Indicators: not required (see B.7 Structures).
B.2	Lineside Signs: not required (see B.7 Structures).
B.3	Switches and Crossings: plain line; and S&C layouts.
B.4	Track and Train Detection: buffer stops; track circuits; IRJs; bonding; track circuit type identification; other train detectors; AWS; and electrification.
B.5	Other Apparatus: not required.
B.6	Level Crossings: as for layout plans (see Appendix A.6).
B.7	Structures: signals; civil engineering; electrification; and GFs.

8 Symbols for Use on Level Crossing Ground Plans

The standard symbols for depicting level crossing equipment on large scale plans are given in Appendix C. Any other general engineering symbols necessary should be taken from [BS EN 60617](#).

Symbols for use on elevation drawings are also identified.

The requirements for level crossing ground plans, including typical drawings showing the colouring convention, are given in [NR/L2/SIG/11201 Module X02](#).

9 Non-Standard Symbols

If a symbol required for signalling purposes does not appear in this standard, another symbol (preferably from [BS EN 60617](#)) may be used, with a legend where necessary to explain its meaning.

In certain instances, where neither the symbol nor the nomenclature fully conveys the information required, a sign (e.g. #) may be used to indicate that reference to notes on the diagram is necessary.

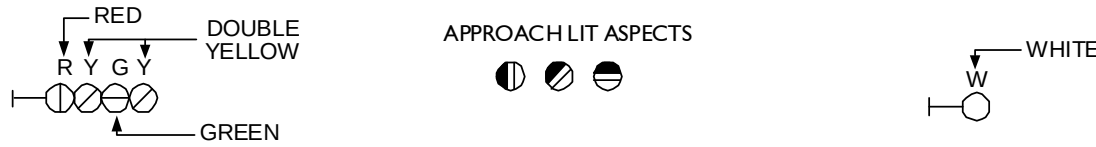
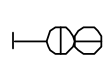
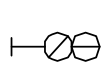
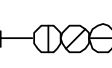
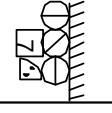
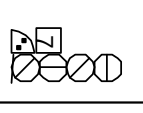
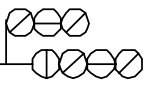
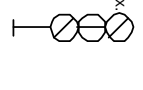
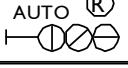
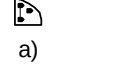
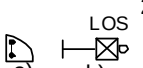
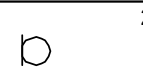
Some obsolete symbols, which are not generally appropriate for new drawings, are shown in Appendix D for reference purposes only. Where old symbols are used

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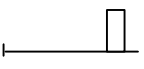
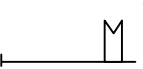
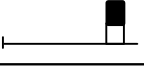
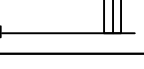
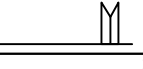
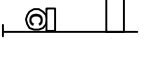
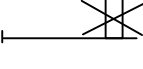
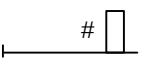
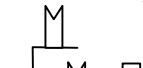
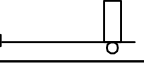
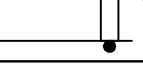
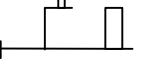
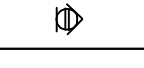
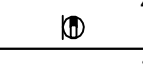
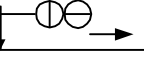
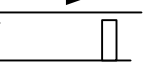
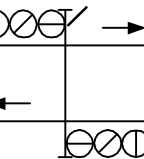
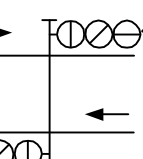
which are not included in Appendix D, a legend should be provided to explain the meaning.

Appendix A – Layout Plan Symbols

Appendix A1

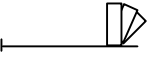
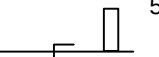
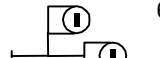
Colour Light Signals			
Colour of aspects:-  A Double Line represents the Normal Aspect of a signal where this needs to be shown.			
Description	Symbol	Description	Symbol
Non-passable Signal, controlled, Multi-unit, Two Aspect, R:G.		01 Multi-unit, Two Aspect, Y:G.	
Multi-unit, Three Aspect, R:Y:G.		03 Multi-unit, Four Aspect, R:Y:YY:G.	
Aspect, Capable of Flashing, eg:- Double Yellow.		05 Aspect, Not Used. eg:- Green.	
Position Light, associated with a Main Aspect, Beneath Main Aspect, Normally "OUT".		07 Position Light, associated with a Main Aspect, Offset, Normally "OUT".	
Multi-unit, Three Aspect, R:Y:G, Position Light, Alphanumeric Standard Route Indicator suspended, alternative orientation shown.		09 Multi-unit, Four Aspect, R:Y:YY:G, Position Light, Standard Route Indicators; mounted at Ground level, e.g. Co-acting Signal.	
Not used.		11 Not used.	
Example of Aspect Positioning and Splitting Distant Signals. Lower Speed Diverging Main Route to Left. Aspects of equal height for equal speed routes.		13 Auxiliary Lights used with single filament lamps. a) shows auxiliary yellow. b) not used.	a) 
Non-passable Signal, automatic, e.g. protecting traction supply section. Example shows signal replacement facility.		15 Colour Light Signal, Temporarily Not in Use.	
Independent Position Light Signal, normally "ON" indicated by bar. a) RW:WW (3 aperture). b) not used.	a) 	17 Independent Position Light, normally "OFF", example shown elevated.	
Independent Position Light Signal, with separately mounted alphanumeric miniature route indicator.		19 Limit of Shunt. a) Position Light, RR. b) Indicator. All can be elevated.	a) 
Proceed on Sight Aspect, associated with a main signal.		21 Shunting, Set Back White Signals, Normally "OUT", W when "OFF".	

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A.1 (continued) Semaphore Signals			
Description	Symbol	Description	Symbol
Stop Signal, Generic symbol where no further information need be conveyed.		23 Distant Signal, Generic symbol where no further information need be conveyed.	
Stop Signal, Power Operated (all types).		25 Distant Signal, Power Operated (all types)	
Stop Signal, Fixed.		27 Distant Signal, Fixed.	
Reflectorised Stop Board. + supplementary legend to be shown.		29 Reflectorised Distant Board.	
Subsidiary Signal, Letter if displayed:- "C" = Call On, "S" = Shunt Ahead.		31 Semaphore Signal, Temporarily Not in Use.	
Special Note, # symbol positioned adjacent to apparatus explained by # reference note.		33 Example of Arm Stepping and Splitting Distant Signals, e.g. Lower Speed Diverging Main Route to Left. Arms of equal height for equal speed routes.	
Signal, Intensified Light.		35 Signal, Electric Lamp.	
Miniature Arm, offset.		37 Shunting Signal, Single, Red Arm, Normally "ON", Can be shown elevated.	
Shunting Signal, Floodlit.		39 Shunting Signal, Power Operated.	
Shunting Signals, Multiple, eg:- Three Arms, bottom signal shown Normally "OFF".		41 Tall Siding Signals, Miniature Arms, eg:- Three Arms, bottom signal shown Normally "OFF".	
Signals; Relationship to track			
Description	Symbol	Description	Symbol
Straight Post, Colour Light Signal, Left of Track for direction of running to which it applies (preferred arrangement).		43 Straight Post, Semaphore Signal, Right of Track for direction of running to which it applies.	
Colour Light Signals, example shows suspended below or on the face of gantry or cantilever.		45 Colour Light Signals, example shows mounted above gantry or cantilever.	
			46

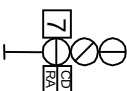
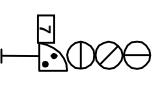
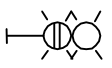
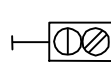
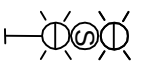
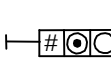
+ Represents the supplementary information that is required adjacent to the symbol on the plan. The requirement is explained in the description column.

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A.1 (continued) Slots			
Description	Symbol	Description	Symbol
Semaphore, Stop Signal, slotted from another box.	 48	Semaphore, Distant Signal, slotted from another box.	 49
Backslot, Slot operated by Semaphore Stop Signal Ahead. (Slot between "stop" & "distant" arm on same post not to be shown.)	 50	Slots, Multiple, add one additional arm for each control, example shows stop signal.	 51
Slot. a) Semaphore Shunting Signal. b) Independent Position Light Signal.	 a)  b) 52	Slots, Main Colour Light Signal & associated Position Light Signal.	 53
Controls			
Description	Symbol	Description	Symbol
Signal, the lever of which is Electrically Locked (semaphore or colour light). Only required on mechanical frames.	 54	Signal, the controls of which are Released by the Block at "Line Clear" (semaphore or colour light).	 55
Signal, the controls of which are Released by Token (semaphore or colour light).	 56	Signal, the controls of which are Released by Key (semaphore or colour light).	 57
Automatic Signal, having Replacement facilities from the Signal Box.	*  58	Signal, Last Wheel Replacement Facilities (shown in Signal Route Tables only).	*  59
Controlled Signal, Automatic Working Facility provided.	*  60	Signal, Controlled by Level Crossing Gate Box but Supervised by Main SB.	*  61
Repeating [any combination at a signal as required]			
Description	Symbol	Description	Symbol
Arm or Aspect, Electrically Indicated in SB.	* AR	Light, Electrically Indicated in SB.	* LR
Slot, Electrically Indicated in SB.	* SR	Arm or Aspect and Slot ON, Slot OFF, Electrically Indicated in SB.	* ASR
Banner Repeater, a) Normally "ON" b) Normally "OFF".	 a)  b) 66	Banner Repeater, Splitting, eg.: Lower Speed Diverging Main Route to the Left.	 67

* These signaller's facilities may be shown in the Signal Box Notes or Table of Signal Routes (see [NR/L2/SIG/11201/Module A18](#)) rather than on the plan.

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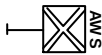
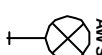
A.1 (continued) Indicators [Alphanumeric Standard Indicator drawn Square / Miniature Indicator drawn half size and Rectangular] Show relative position of indicators to signal. Route characters, signal class and descriptions to be shown in Table of Signal Routes (see RT/E/C/11701).			
Description	Symbol	Description	Symbol
Junction Indicator, showing all possible diverging route indicators.		68 Alphanumeric Standard Route Indicator(s). Numeral indicates the number of route indications.	
Alphanumeric Standard Route Indicator, eg:- alternative position, avoiding confliction with Miniature Indicators for "CD" - Close Door & "RA" - Right Away.		70 Alphanumeric Miniature Route Indicator(s), associated with position light signal routes. Numeral indicates the number of route indications.	
Alphanumeric Indicator, Double Sided, miniature. No Longer Permitted with Signals. Example shows platform indicator hung from canopy.		72 Alphanumeric Indicator, can indicate:- [TT] Tripcock Test / [OFF] Off / [BT] Brake Test / [BU] Barriers Up / [RA] Right Away / [CD] Close Doors.	
Loading / Unloading Indicators,		74 Driver's Level Crossing Indicator, [DCI]:- aspects R:W Flashing	
Points Indicator.		76 Signal Passed At Danger Indicator.	
Carriage Depot Indicator. # supplementary legend.		78 TPWS Lineside Status Indicator for RETB Lines, Blue Light on White Board.	
Composite RETB/TPWS Stop Board. # supplementary legend.		80 Composite RETB/TPWS Distant Board.	
Markers			
Description	Symbol	Description	Symbol
Fixed Block Marker. For use on lines with cab signalling. Arrow points to applicable line.		82 Shunt Limit Marker. For use on lines with cab signalling. Arrow points to applicable line.	
Platform Stop Marker, where required for signal sighting purposes. + No. of cars or class of train.		84 Mid-platform Train Berth Marker.	
Rear Clear Marker.		86 Radio Electronic Token Block, Station Limits/Loop Clear Marker.	

Represents the supplementary information that is required elsewhere on the plan. The requirement is explained in the description column.

+ Represents the supplementary information that is required adjacent to the symbol on the plan. The requirement is explained in the description column.

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Issue:	5
Date:	03/09/2011
Compliance date:	03/09/2011

A.2 Lineside Signs (see GI/RT7033 for application details)

Train Warning and Protection Systems			
Description	Symbol	Description	Symbol
Cancelling Indicator.	 01	Commencement of Gap.	 02
Termination of Gap.	 03	Warning of Cab Signalling.	 04
Commencement of Cab Signalling.	 05	Termination of Cab Signalling.	 06
Signalling Signs			
Description	Symbol	Description	Symbol
Notice Board, Reflectorised, # supplementary legend.	 07	Notice Board, Internally Lit. # supplementary legend.	 08
Notice Board, Flood Lit, # supplementary legend.	 09		 10
Cab Secure Radio [CSR], reflectorised, Radio Channel Change Board. ++ channel number.	 11	National Radio Network [NRN], reflectorised, Radio Channel Change Board. +++ channel number.	 12
GSM-R equipped area, reflectorised, a) commencement, b) termination.	a)  b)  13	Radio Electronic Token Block [RETB], reflectorised, Radio Channel Change Board. +++ channel number.	 14
Advanced Warning Board for AOCL / ABCL / OC Level Crossings, Reflectorised.	 15	Whistle Board.	 16
Signal Post Signs			
Description	Symbol	Description	Symbol
White "Diamond".	 17	Combined "Diamond" and "X" sign.	 18
Limited Clearance Telephone.	 19	Passable Signal, automatic.	 20
Intermediate Block Home Signal.	 21	Passable Signal, controlled, # type of control, e.g. "single button control". Example shows automatic working facility.	 22
Special Speed Restriction Board, miniature, repeating. + speed (in mph).	 23	Distant Signal.	 24

Represents the supplementary information that is required elsewhere on the plan. The requirement is explained in the description column.

+ Represents the supplementary information that is required adjacent to the symbol on the plan. The requirement is explained in the description column.