
Recommended Circuit Nomenclature
Revised 2025 (17 Pages)

A. Purpose

This Manual Part explains and illustrates the abbreviated designations used in recommended nomenclature for electrically operated signal units and wires.

Letters suggestive of the words they represent have been assigned as far as practicable, but there are some letters that stand for names which cannot be directly associated, such as "G" Signal; "W" Switch; etc. Many of the letters represent several different meanings or words, such as "N" Normal; "N" Negative; "N" North, depending upon the use and location with respect to numerals and other letters. If the scheme is consistently used there should be no mistake in the meaning, providing care is taken. Various nomenclature schemes have been adopted by different railroads. Any scheme that is selected should be used consistently for all design work.

B. Nomenclature of Electrically Operated Units

The term "electrically operated unit" is used to signify a signal device such as color light signal, relay, electric lock, etc. In order to provide a graphic code for representing these units on plans, the following system has evolved, which makes use of a designation made up of two parts:

1. Numerical Prefix: The number of the principal lever, signal, track circuit, or other device entering into the control of or controlled by the unit.
2. Alphabetic Term: Consisting of one or more letters. The last letter of this term designates the general kind of unit, while the first letter or letters, when used, describe specifically the operated unit.

The complete designation of a unit is written as follows:

(Numerical Prefix)	(First Letter)	(Last Letter)
10	H	R

Written 10HR - without spaces or punctuation and in upper case letters.

In this example, 10 is the number of a signal. 10HR means home relay for signal 10. The letter H indicates that the function of this relay is to control the approach indication of a signal. The letter R means relay.

Refer to Figure 1611-2 for illustration of nomenclature usage on a circuit diagram. Relay nomenclature used on coils and contacts is presented in two lines. The top line is the identification of the signal, switch, track circuit or other function. The bottom line is the description of the unit. The suffix

“R” may be omitted based on the assumption that the symbol already defines it as a relay.

C. Track Circuit Numbering Methods

1. Track Circuits within interlocking limits may be designated by using the letter "T" preceded by:
 - a. The number assigned to a switch, derail or moveable point frog lying within the track circuit.
 - b. The number of the signal most closely associated with the track circuit.
 - c. The designation of a mainline, siding or yard track associated with the track circuit.

Example - 3T and subsequent track circuits would be 3AT, 3BT and so on.

2. Track Circuits outside of interlocking limits may be designated by:
 - a. Using the number of the governing automatic block signal or associated cut section or milepost designation. If there is more than one track circuit in the block, use an alphabetical prefix beginning with the letter A, continuing in alphabetical order.

Example - 1013T for the first track circuit, then A1013T, B1013T and so on for subsequent track circuits.

- b. Using the track number and the alphabetical character prefix as determined by the number of the track.

Example - For track 1, A1T, B1T, etc. and for track 2, A2T, B2T and so on.

D. Signal Numbering Methods

1. Signal defining the interlocking limits may be designated by:
 - a. Numbering the signal to match the number assigned to the control lever or its equal on the control console.
 - b. Assigning the signal a number, even or odd, opposite of switch number scheme assigned.
 - c. Using the track number with timetable direction.

Example - For track 1 eastward direction, 1E, 1EA, etc. and for track 2 westward direction, 2W, 2WA, etc. or other methods designated in Section G.

2. Automatic signals may be designated by:
 - a. Assigning track number, nearest mile post number within a tenth of a mile, and direction of the signal. Direction can be determined by assigning an even or odd tenth of a mile subsequently.

Example – Multiple track signals on main track 2 at milepost 101.33 could have numbers assigned for eastward signal 21014 and westward signal 21013.

- b. Assign direction and track number with nearest milepost.

Example - Signals at milepost 101.33, for eastward signal on main track 1 could be identified as 1E101.3 or 1011E and so forth.

E. Switch Numbering Methods

1. Interlocked switches may be designated by:
 - a. Numbering the switch to match the number assigned to the control lever or its equal on the control console.
 - b. Assigning the switch an odd or even number, opposite of the signal number scheme assigned.
 - c. Assigning numbers starting from right or left (being consistent) as shown on the track and signal plan that will not conflict with signal number scheme.
 - d. The number designation corresponds to the track number based on direction (i.e.: A switch from track 2 to track 1 would be numbered 21.). A parallel crossover could be numbered 121 and another parallel crossover 221 to distinguish between the parallel crossovers.
2. When crossover switches, moveable point frogs or derails are controlled by the same lever or its equal on the control console, each device or machine should be designated with suffix letter such as "A" for one end of crossover and "B" for the other end or "E" for the east end and "W" for the west end.

F. Wire Identification

A wire may be identified by circuit nomenclature or by termination nomenclature method. Combinations of the two methods may be used when desirable.

1. Circuit Nomenclature Method:

A wire is identified by nomenclature similar to that applied to the operated unit. A wire connected to the negative power source is identified in the same manner as a wire connected to the positive power source except that the designation is preceded or followed by the letter N.

In case of branch wiring, the above method is applied to the primary circuit. The letter A is appended to distinguish the first branch, the letter B distinguishes the second, etc.

An appropriate break number is assigned to indicate the number of controlling contacts or other devices in the circuit between the wire and the operated unit. An alternate scheme is to number only the number of locations through which the circuit has passed. Jumper connections on the same device are not usually numbered.

Since wire identification can be somewhat arbitrary, it is essential that it be shown on drawings if this scheme is used. For example, see Figure 1611-1 or 1611-2.

2. Termination Nomenclature Method:

Each end of a wire is identified by the marking of the termination point on the device to which the wire is to be connected. When there is more than one termination point with the same marking on the device or when there is no marking at all, a preferred designation will be indicated on plans. All wires to a device will be grouped together or identified as wires to be connected to that device. For example, refer to Figure 1611-3.

In case of branch wiring, the branch wire is given the same designation as the principal wire since they are terminated at the same point. The branch connection is shown on the plan at the point the termination is made. For example, see Figure 1611-1.

G. Table of Meaning of Letters

Relay control wires are in general designated with the same combination of numbers and letters as the relay without the last letter R except where there may be other operated units with the same combination of numbers and letters. In such cases, the same combination of numbers and letters as the relay including the last letter R should be used to avoid duplicate tagging.

The following tables list Descriptive and Designative Terms associated with letters used in signal system device and circuit nomenclature.

Table 1611-1: Descriptive and Designative Terms

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A	B	C	D	E	F
Approach	Positive	Common	Distant	Electric light	Traffic
Audio	Button	Changer	Proceed aspect	East	Front
Alternator	Block	Counter	Detector	Eastward	Frequency
Arrester	Bridge	Correspondence	Decoding	Element	Following
Air	Back	Circuit controller	Dragging	Equipment	Fleeting
Auxiliary	Box	Converter	Device	Electronic	Flasher
Alarm		Capacitor	Direction	Engine	
Automatic		Code			
Ampere		Coupler			
		Checking contact			
		Change			
		Coupling			
		Clearance			
		Call			
		Charge			

G	H	I	J	K	L
Signal	Home	Impulse	Skate	Indicator lamp	Lock (initial)
Grade	Approach aspect	Instrument	Dual control	Key	Left
Ground	Hot	Interlocking	Special circuit	Indication	Locking
Gate	High	Inert			Lever
Green	Heater				Split battery
	Heel				Lock valve
	House				Lock
	Hour				Loose
					Lightning
					Low
					Line
					Location
					Inductor

M	N	O	P	Q	R
Lock (final)	Normal	Order	Pole	Local	Reverse
Magnetic	North	Operating	Power		Right
Marker	Northward	Off	Purple		Red
Manual	Negative	Overload	Push		Relay
Motion	Neutral	Out	Repeating		Power
Maintainer	On	Overlay	Primary		Route
Melter			Pressure		Rail
Monitor			Permissive		Receiver
Motor			Pneumatic		Rate
Main			Phone		Resonant
					Rectifier

S	T	U	V	W	X
South	Track	Retarder	Train stop	Switch	Crossing
Stick	Time	Unit	Cab Signal	West	Interlocking
Storage	Train	Special	Volt	Westward	Bell
Southward	Telephone		Vital	White	Buzzer
Scale	Transformer			Wheel	AC
Sensor	Transmitter				Crossover
Suppressor	Tuner				
Surge	Transceiver				

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S	T	U	V	W	X
Supply	Transducer				
Shift					
Shunt					
Slide					
Snow					
Start					
Sensitive					
Secondary					
Selector					
Spring					
Siding					
Selective					
Stop					

Y	Z				
Slot	Request				
Yellow	Special				
Hold clear					

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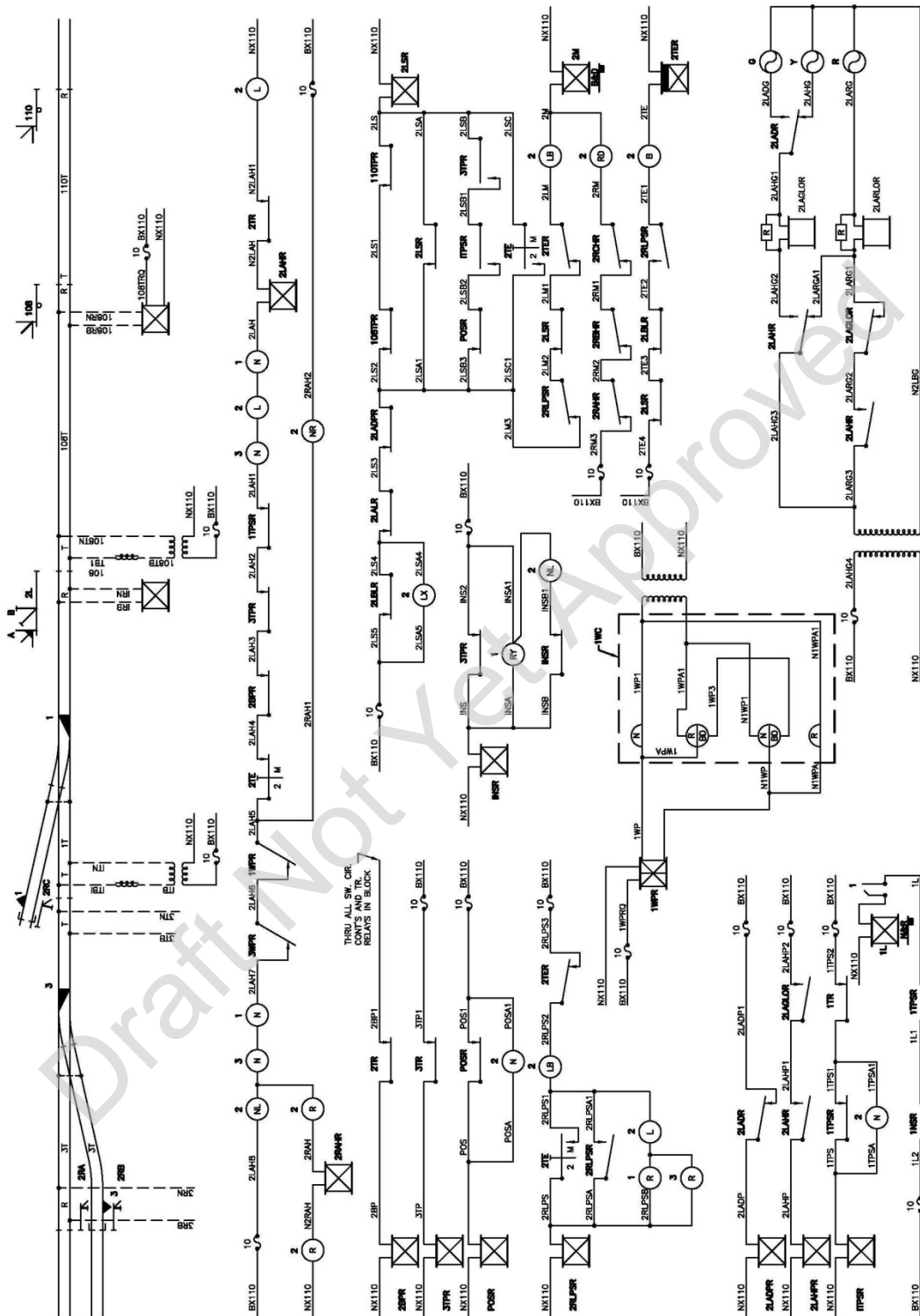


Figure 1611-1: Example of Application of Symbols and Wire Identification (Circuit Nomenclature)

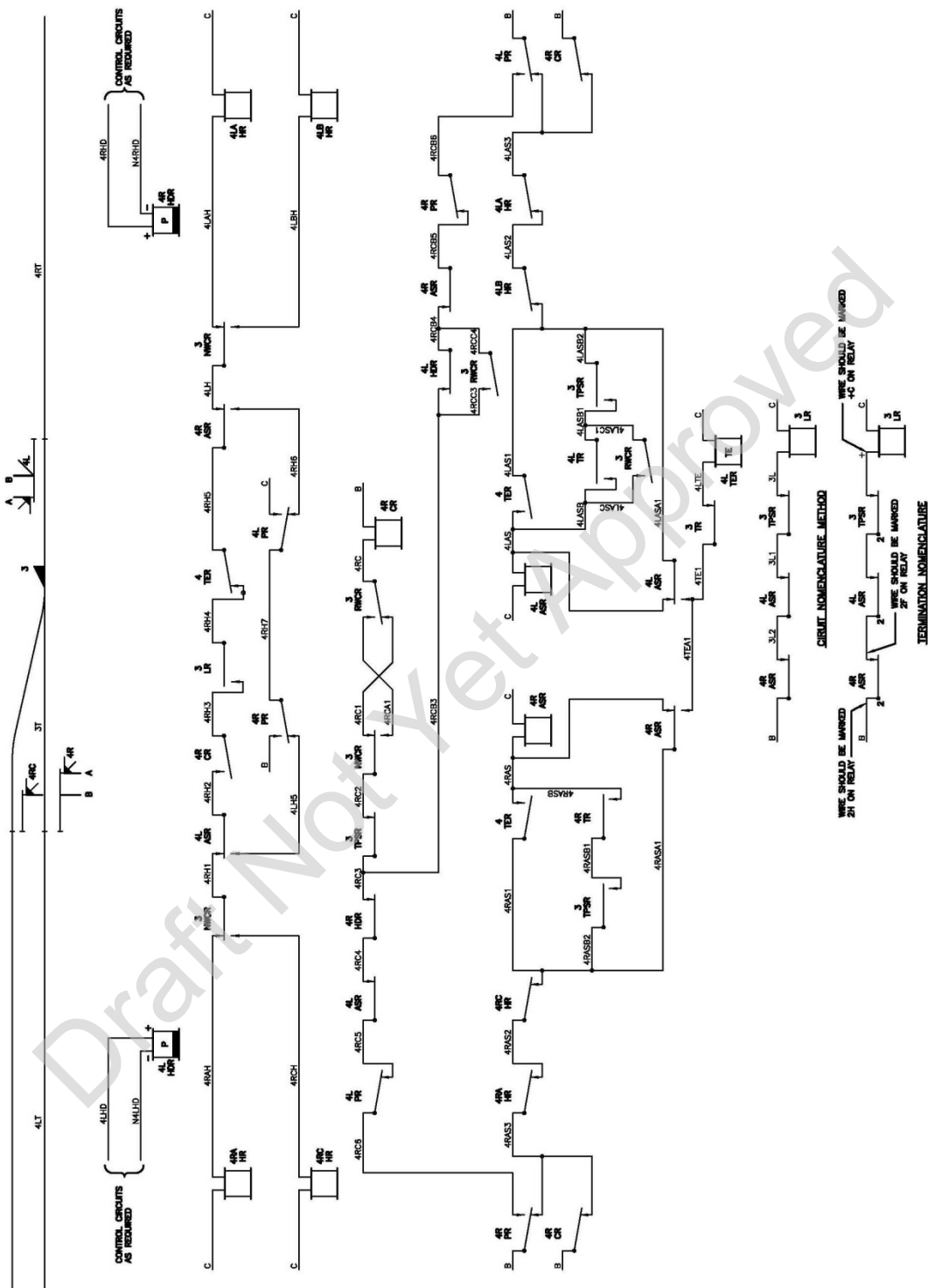


Figure 1611-2: Example of Application of Symbols and Wire Identification (Circuit and Termination Nomenclature)

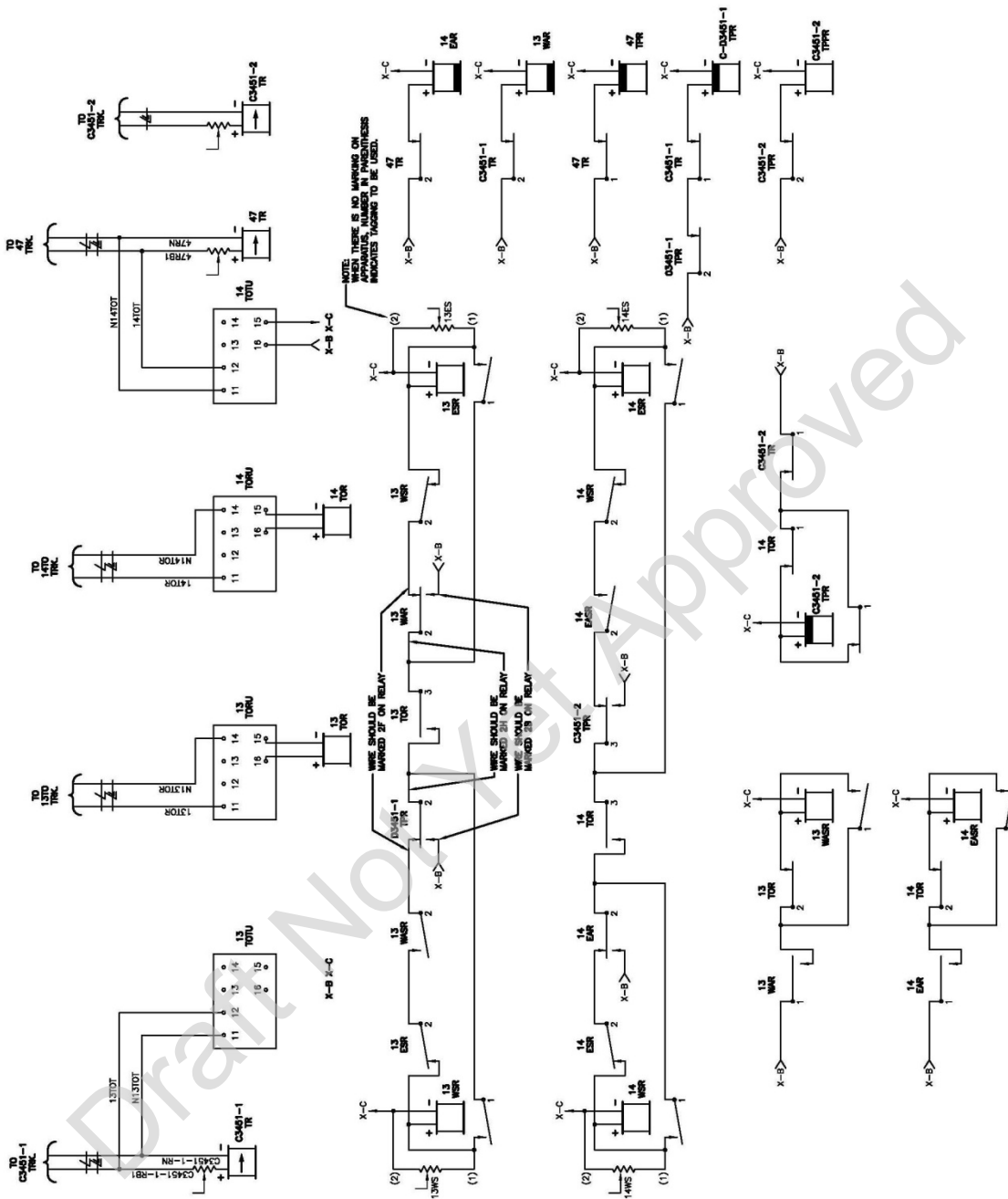


Figure 1611-3: Example of Application of Symbols and Wire Identification (Termination Nomenclature)

1. In order to distinguish between right and left position of three-position levers, use R (right) or L (left) after the lever number, as 10R, 10L or use track number and timetable direction conforming as designated in Section D.

When one lever controls two or more functions, use letters A, B, C, etc., after the lever numbers: for example, 10A, 10B, 10C, etc.

In case of three-position levers controlling two or more functions in each position, use combinations as follows: 10RA, 10LA, etc.

Other combinations used to Designate Wires and Operated Units may be developed by analogy as required. Special symbols such as hyphens etc. may be used to avoid confusion.

2. Power Source

(Suffix figure should be used to indicate voltages: for example, CX110 meaning common ac 110 volts. Additional letters may be used to indicate use of power source)

C	- Common dc
EC	- Common east, meaning dc from system east, likewise north, south and west
CX	- Common ac
ENX	- AC from POR for an electric light
NX	- One side of an ac circuit (ground side of a two-wire grounded circuit)
BL	- Positive side of split battery
NL	- Negative side of split battery
CL	- Common of split battery
N	- Negative dc
B	- Positive dc
EB	- Positive dc east, likewise north, south and west
BX	- One side of an ac circuit
EBX	- AC from POR for an electric light

3. Operated Units Relating to Track Circuits

COT	- Call-on track
CT	- Coded track section
CTR	- Coded track relay
OT	- Overlay track section
OTR	- Overlay track relay
OTPR	- Relay repeating overlay track relay
OTTU	- Overlay track transmitter unit
OTRU	- Overlay track receiver unit

T	- Track section
TR	- Track relay
TPR	- Relay repeating track relay
TPPR	- Relay repeating track-repeating relay
TSR	- Track stick relay
TSPR	- Relay repeating track stick relay
TK	- Indicator of track circuit condition
TPSR	- Stick relay repeating track relay
TYPR	- Combination track repeater relay
BPR	- Block repeater relay, relay repeating the track circuits in a block
BK	- Block indicator

4. Wires Relating to Track Circuits

TB	- Track positive-Positive to rail
T1	- Track transmitter – Wire 1 to rail
T2	- Track transmitter- Wire 2 to rail
R1	- Track receiver – Wire 1 to rail
R2	- Track receiver – Wire 2 to rail
TN	- Track negative-Negative from rail
RB	- Relay positive-Wire from positive rail to relay
RN	- Relay negative-Wire from negative rail to relay
TQ	- Positive control of local coil, double-element ac track relay
TK	- Positive control of TK
WB	- Positive rail to switch circuit controller
WN	- Negative rail to switch circuit controller

5. Operated Units Relating to Switches

W	- Switch operating mechanism or lock valve
WR	- Relay, controller or contactor controlling both normal and reverse operations of a switch or an electric switch lock
WNR	- Relay, controller or contactor controlling the normal operation of a switch or an electric switch lock
WRR	- Relay, controller or contactor controlling the reverse operation of a switch or an electric switch lock
WRPR	- Relay repeating WR
WPR	- Relay repeating position of switch
NWPR	- Relay repeating normal position of switch or normal position of WPR
RWPR	- Relay repeating reverse position of switch or reverse position of WPR
WK	- Indicator of the positions of a switch
WL	- Switch lock operating mechanism on a switch
NWLPR	- Relay repeating normal position of switch lock
NJPR	- Relay repeating normal position of dual-control lever

RJPR	-	Relay repeating reverse position of dual-control lever
NWK	-	Indicator of the normal position of a switch
RWK	-	Indicator of the reverse position of a switch
WAK	-	Indicator of the block condition in approach to a switch
RWLPR	-	Relay repeating reverse position of switch lock
WCR	-	Switch correspondence relay
NWCR	-	Normal switch correspondence relay
RWCR	-	Reverse switch correspondence relay
SS	-	Spring Switch
LR	-	Lock Relay

6. Wires Relating to Switches

NW	-	Normal control of switch operating mechanism
RW	-	Reverse control of switch operating mechanism
N10W	-	Individual return wire to 10 switch operating mechanism
WR	-	Positive control of WR
N10WR	-	Negative control of 10WR
WNR	-	Positive control of WNR
WRR	-	Positive control of WRR
WK	-	Positive control of WK
N10WK	-	Negative control of 10WK
NWK	-	Positive control of NWK
RWK	-	Positive control of RWK
WA	-	Positive control of WAK
WL	-	Positive control of WL

7. Operating Units Relating to Signals

HR	-	Relay controlling approach indication of a signal
DR	-	Relay controlling proceed indication of a signal
HDR	-	Relay controlling approach and proceed indication of a signal
HPR	-	Relay repeating HR or approach indication position of HDR
HSR	-	Home stick relay controlling the approach indication of a signal
DPR	-	Relay repeating DR or proceed indication position of HDR
RGPR	-	Relay repeating signal mechanism at stop
HGPR	-	Relay repeating signal mechanism at approach
RHGPR	-	Relay repeating signal mechanism at approach and stop
DGPR	-	Relay repeating signal mechanism at proceed
RGK	-	Indicator of signal mechanism at stop
HGK	-	Indicator of signal mechanism at approach
DGK	-	Indicator of signal mechanism at proceed
ETOHR	-	East train order HR, likewise west, north and south
ETOHDR	-	East train order HDR, likewise west, north and south

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- ETOPHR - East train order repeater HR, likewise west, north and south
 - ETOPDR - East train order repeater DR, likewise west, north and south
 - HDGPR - Relay repeating signal mechanism in the approach and proceed position
 - HDGK - Indicator of signal mechanism in the approach and proceed position
 - HY - Hold clear or retaining mechanism of the approach indication of a signal
 - DY - Hold clear or retaining mechanism of the proceed indication of a signal
 - HG - Approach indication operating mechanism of a signal
 - DG - Proceed indication operating mechanism of a signal
 - RG - Stop indication operating mechanism of a signal
 - COR - Call on Relay
 - COSR - Call on Stick Relay

8. Wires Relating to Signals

- HDGK - Positive control of HDGK
- RGK - Positive control of RGK
- HGK - Positive control of HGK
- DGK - Positive control of DGK
- HG - Positive control of HG
- DG - Positive control of DG
- RG - Positive control of RG
- N10HG - Negative control of 10HG
- HY - Positive control of HY
- DY - Positive control of DY

9. Stick, Traffic and Directional Operated Units

- SR - Stick relay
 - ESR - Eastward stick relay, likewise north, south and west
 - LSR - Locking stick relay
 - ASR - Approach stick relay
 - EASR - East or Eastward approach stick relay, likewise north, south and west
 - FL - Traffic lock preventing initial movement of a traffic lever from normal or reverse
 - FLM - Traffic lock preventing initial movement of a traffic lever from normal or reverse and also preventing final or indicating movement of same lever
 - FR - Traffic relay
 - FLR - Traffic lock relay controlling FL
 - FLMR - Traffic lock relay controlling FLM
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- FLK - Traffic lock indicator
 - FSR - Traffic stick relay, Following stick relay
 - EFSR - East or Eastward traffic stick relay, likewise north, south and west
 - RR - Route relay, Route request

10. Wires Relating to Stick, Traffic and Directional Units

- FL - Positive control of FL
- FLM - Positive control of FLM
- F - Positive control of FR
- FLR - Positive control of FLR
- FLMR - Positive control of FLMR
- FLK - Positive control of FLK

11. Operated Units Relating to Indicators, Locks, Indication Magnets, and Relays Used for Locking Purposes

- M - Lock preventing the final movement of a lever
- L - Lock preventing the initial movement of a controlled function or lever
- NK - Normal indicator of normal position of a unit
- RK - Reverse indicator of reverse position of a unit
- TER - Time element relay
- NM - Lock preventing the final movement of a lever to the normal position
- RM - Lock preventing the final movement of a lever to the reverse position
- NL - Lock preventing the movement of a lever or a controlled function from its normal position
- RL - Lock preventing the movement of a lever or a controlled function from its reverse position
- LR - Relay controlling L lock
- LPR - Repeater of L lock relay
- MR - Relay controlling M lock
- MPR - Repeater of M lock relay
- TE - Time element
- TESR - Time element stick relay
- LK - Lock indicator repeating electric locking
- TEPR - Relay repeating energized position of TE
- TECPR - Relay repeating checking contact of TE

12. Wires Relating to Locks, Indication Magnets and Relays for Locking Purposes

- M - Positive control of M
- L - Positive control of L

-
- | | | |
|-----|---|-------------------------|
| NK | - | Positive control of NK |
| RK | - | Positive control of RK |
| NM | - | Positive control of NM |
| RM | - | Positive control of RM |
| NL | - | Positive control of NL |
| RL | - | Positive control of RL |
| LR | - | Positive control of LR |
| MR | - | Positive control of MR |
| MPR | - | Positive control of MPR |
| LK | - | Positive control of LK |
13. Operated Units Relating to Highway Grade Crossing Warning Devices
- | | | |
|--------|---|--|
| XR | - | Crossing control relay |
| XX | - | Crossing bell |
| EXR | - | Eastward crossing relay, likewise north, south and west |
| EOR | - | Electric light oscillating relay (flasher relay) |
| XSR | - | Directional relay to hold crossing signal clear as train recedes from crossing |
| XGR | - | Crossing gate mechanism control relay |
| NXGPR | - | Normal crossing gate mechanism repeater relay |
| NXGPPR | - | Relay repeating normal crossing gate mechanism repeater relay for three-second delay |
| GDPR | - | Gate down repeater relay |
14. Wires Relating to Highway Grade Crossing Warning Devices
- | | | |
|-----|---|--|
| XG | - | Positive control of XG |
| RXG | - | Reverse control of XG (drive down mechanism) |
15. Operated Units Relating to Approach and Annunciating of Trains
- | | | |
|-----|---|--|
| AX | - | Annunciator indicating approaching traffic |
| EAX | - | Eastward annunciator indicating approach of eastward traffic, likewise north, south and west |
| AER | - | Relay used for approach lighting |
16. Wires Relating to Approach and Annunciating of Trains
- | | | |
|----|---|------------------------|
| AX | - | Positive control of AX |
| EA | - | Positive control of EA |
17. Miscellaneous Operated Units
- | | | |
|------|---|--|
| AK | - | Approach indicator |
| AR | - | Approach relay |
| PCR | - | Pole changing relay |
| NLPR | - | Relay repeating the normal position of a lever |
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RLPR	- Relay repeating the reverse position of a lever
E	- Electric light
TO	- Train order signal
WTO	- West train order signal governing westward traffic, likewise north, south and east
VR	- Train stop relay, Cab signal control relay
VSR	- Train stop stick relay, Cab signal stick relay
VPR	- Train stop repeater relay, Cab signal repeater relay
VY	- Train stop retaining mechanism
XR	- Interlocking relay
TOR	- Train order relay
POR	- Power off relay
POSR	- Power off stick relay
LOR	- Light out relay
ME	- Marker light
OR	- Overload relay
GDR	- Ground detector relay
CT	- Code transmitter
DU	- Decoding unit
RLNPR	- Rail lock normal repeating relay
RLRPR	- Rail lock reverse repeating relay
DED	- Dragging equipment detector
DEDPR	- DED Repeating relay
DEDPSR	- DEDP Stick relay
DEKR	- DED Indication relay
FCOR	- Frequency change-over relay
CU	- Coupling unit
LOTU	- Line overlay transmitter unit
LORU	- Line overlay receiver unit
VB	- Vibrating bell
SMK	- Snow melter indicator
SMZR	- Snow melter control relay
DT	- Decoding transformer
FLTR	- Fleeting relay
PBSR	- Push button stick relay
RCR	- Route check relay
VSTOPR	- Vital stop relay
VCOR	- Vital cutoff relay
VRD	- Vital relay driver
COR	- Cut-out relay

18. Wires Relating to Miscellaneous Operated Units

- AK - Positive control of AK
- ME - Positive control of ME
- CT - Positive control of CT
- DU - Positive control of DU

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