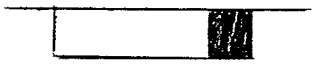
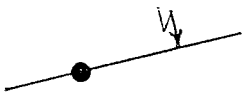
DIRECTOR OF S & T ENGINEERING.
WEST MIDLANDS PROJECTS GROUP.

WIRING SYMBOLS



Electromagnet - slow release



Contact fitted with magnetic blowout

Point detector contact

INTRODUCTION

In the module "Introduction to Plan Symbols" we covered schematic symbols designed for use on railway layout plans to show the signalling requirements. The standard was laid down in BS 376 Part 1.

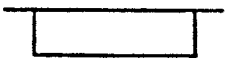
Part 2 of BS 376 shows railway signalling symbols for wiring diagrams and written circuits.

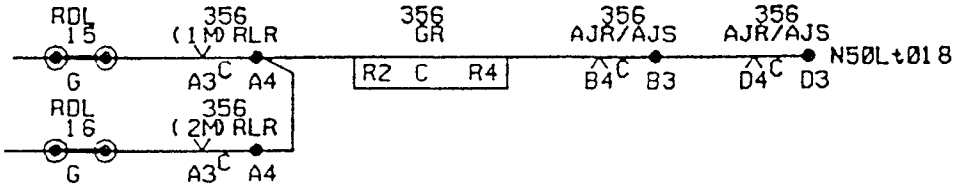
continued

SELECTED EXTRACTS FROM B.S 376 PART 2

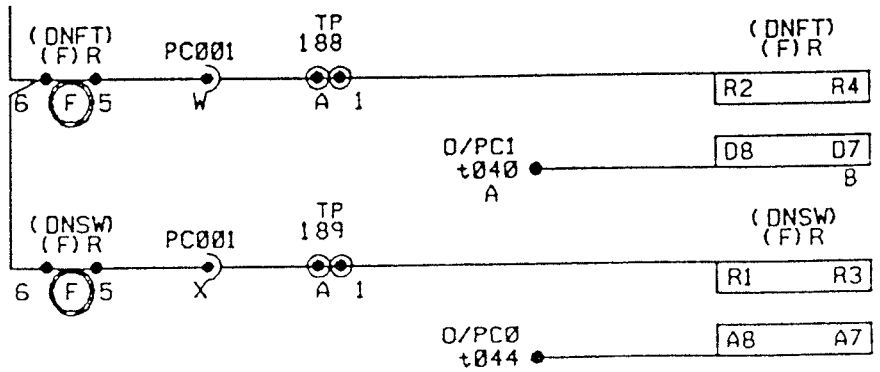
SECTION 10

ELECTRO-MAGNETS

No.	Nomen-clature	Description	Written circuit
1001		Electro-magnet.	

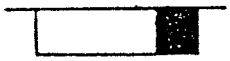


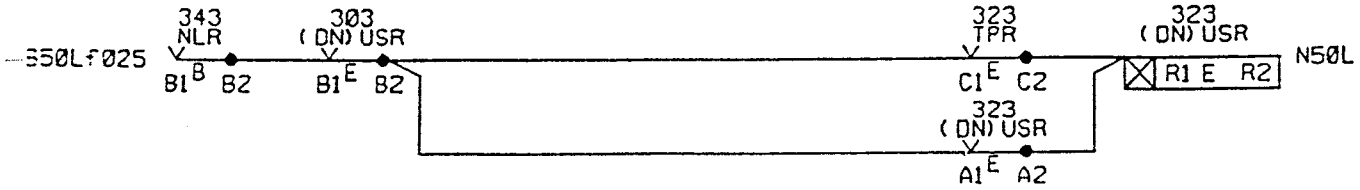
1002		Electro-magnet, with double winding.	Each winding shown thus:  The dotted line shows that reference to the other circuit is required.

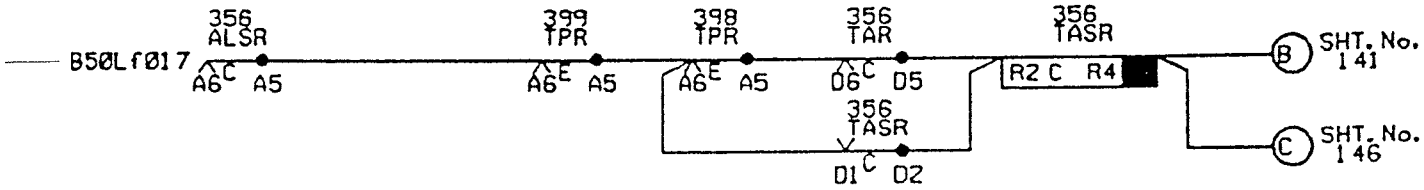


continued

WIRING SYMBOLS

1003		Electro-magnet, slow acting.	 Slow release  Slow pick up

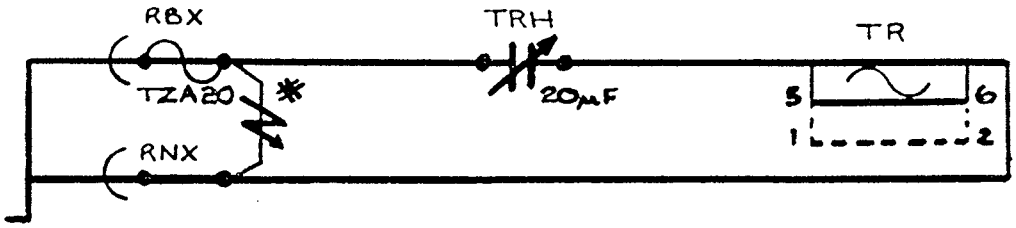




continued

WIRING SYMBOLS

1004		Electro-magnetic system, requiring two energized windings	Each winding shown thus:  The dotted line shows that reference to the other circuit is required.

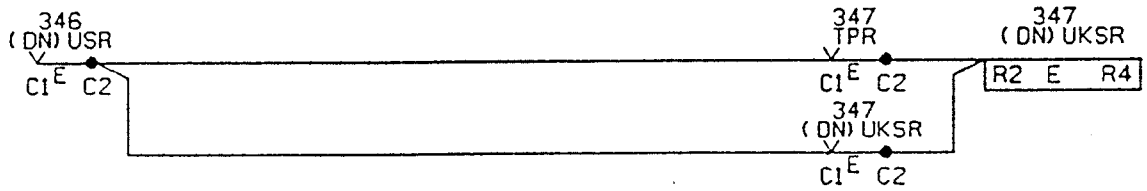


continued

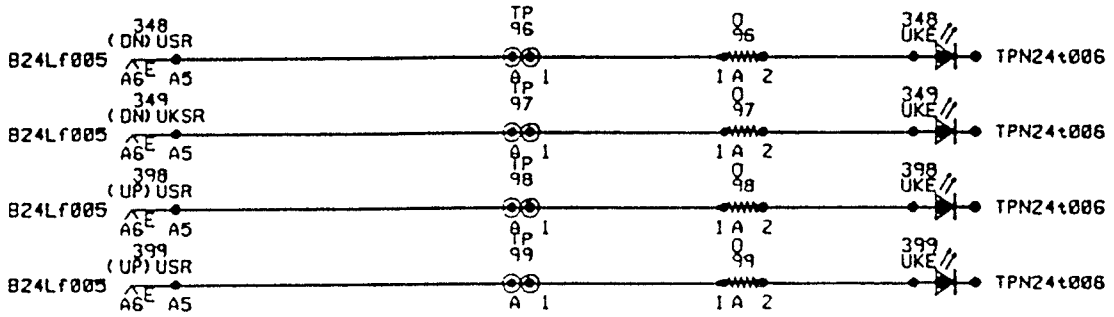
SECTION 11

CONTACTS - RELAYS

No.	Nomen-clature	Description	Written circuit
1101	F	Contacts on non-polarized armature. a. Closed when magnet is energized. ('Front' or 'Top' contact).	



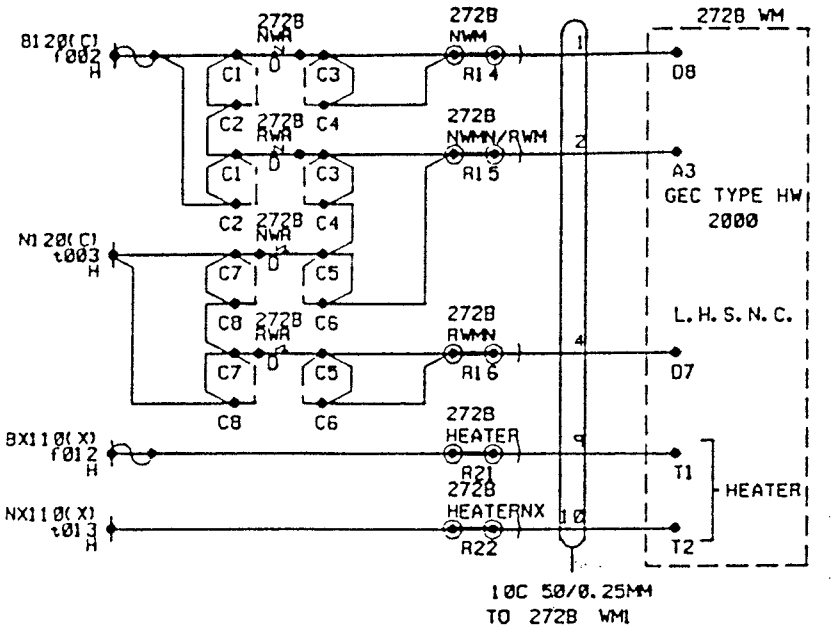
	B	b. Closed when magnet is de-energised. ('Back' or 'Bottom' contact).	



continued

WIRING SYMBOLS

1110		Contact fitted with magnetic blow-out.	

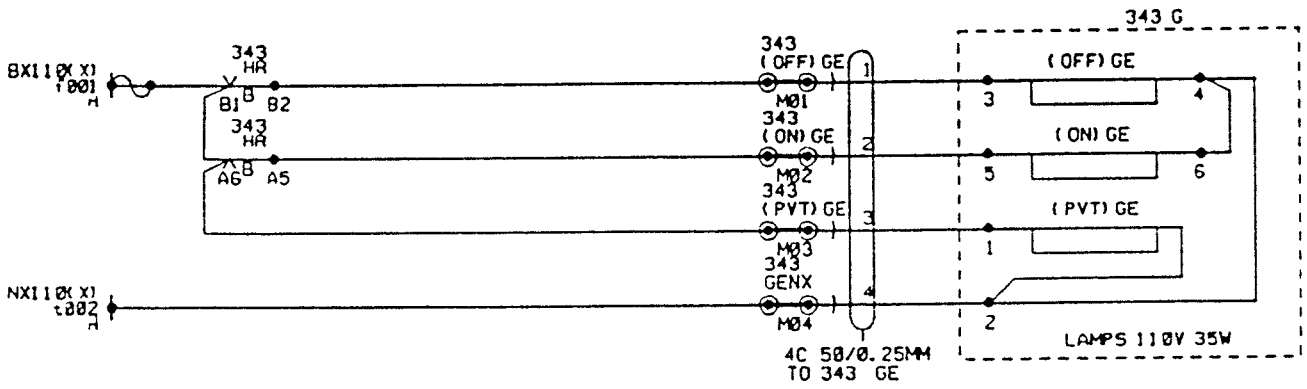


continued

SECTION 13

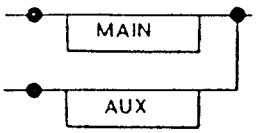
INDICATORS

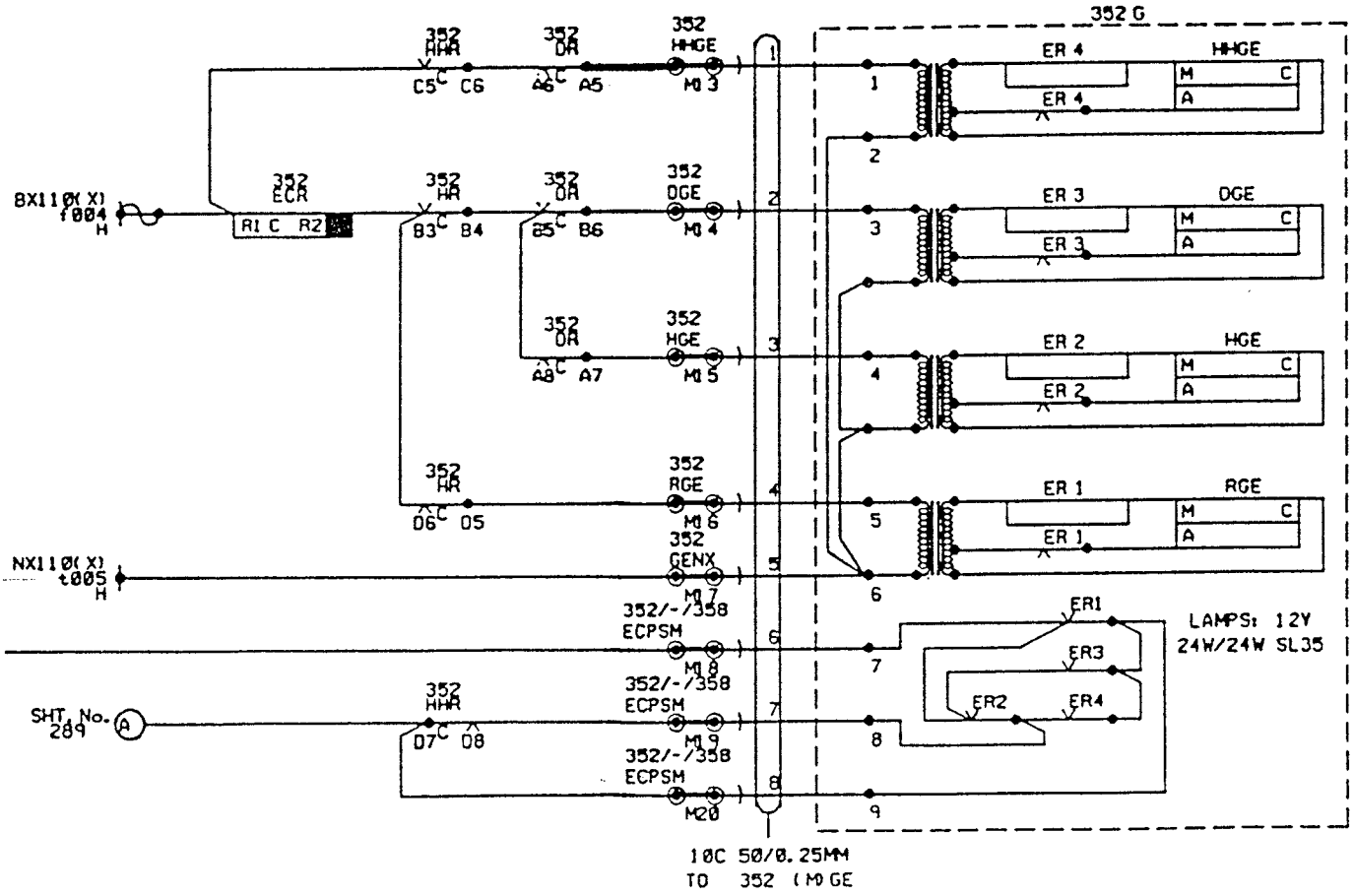
No.	Nomen-clature	Description	Written circuit
1301	K	Indicator, electro magnetic type. NB. Details of type may be added.	
1309	E	Electric lamp. Double pole.	



continued

WIRING SYMBOLS

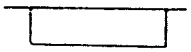
1310	E	Electro lamp. Triple pole.	

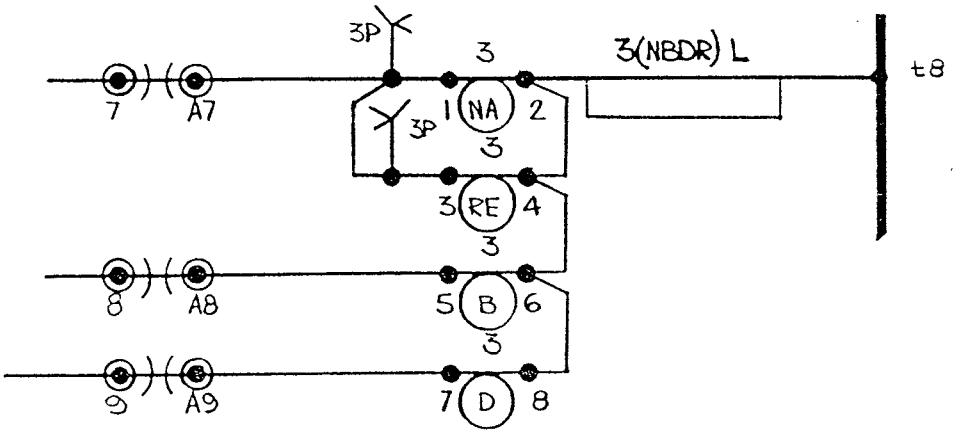


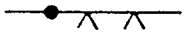
continued

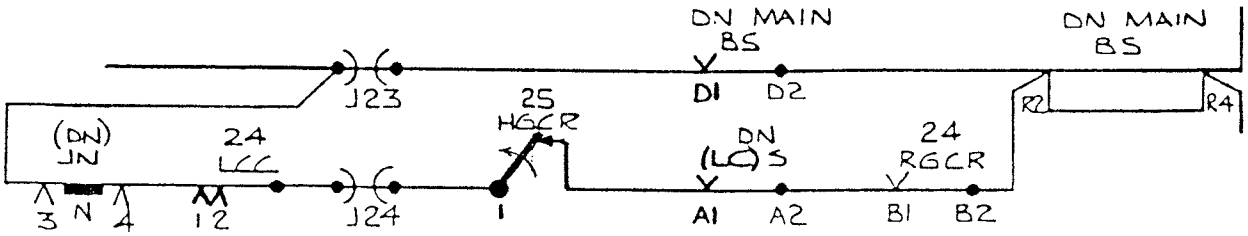
SECTION 14

ELECTRIC LOCKS

No.	Nomen-clature	Description	Written circuit
1401	L	Electric lever locks (show locking positions by letters as in symbols 1601 and 1602). a. Without built in economiser contacts.	



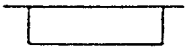
1403	LCC	b. Lock in contact.	

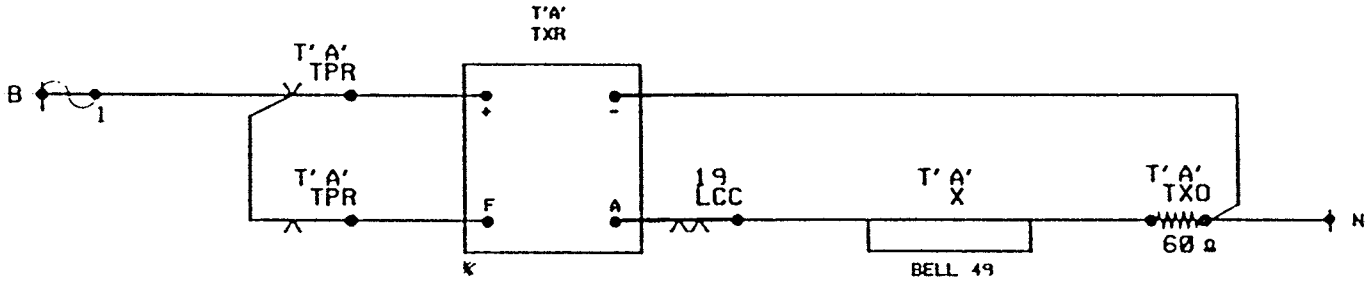


continued

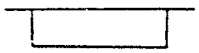
SECTION 15

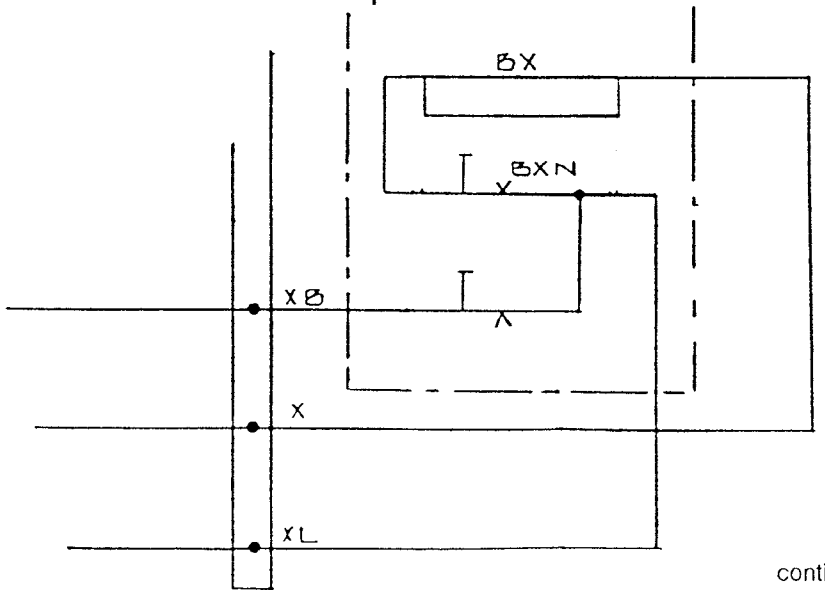
BELLS, BUZZERS AND HORNS

No.	Nomen-clature	Description	Written circuit
1501	X	Bell. (General symbol).	



* ANNUNCIATOR UNIT TO DRAWING TD 55031

1502	X	Bell. Single stroke.	



continued

SECTION 16

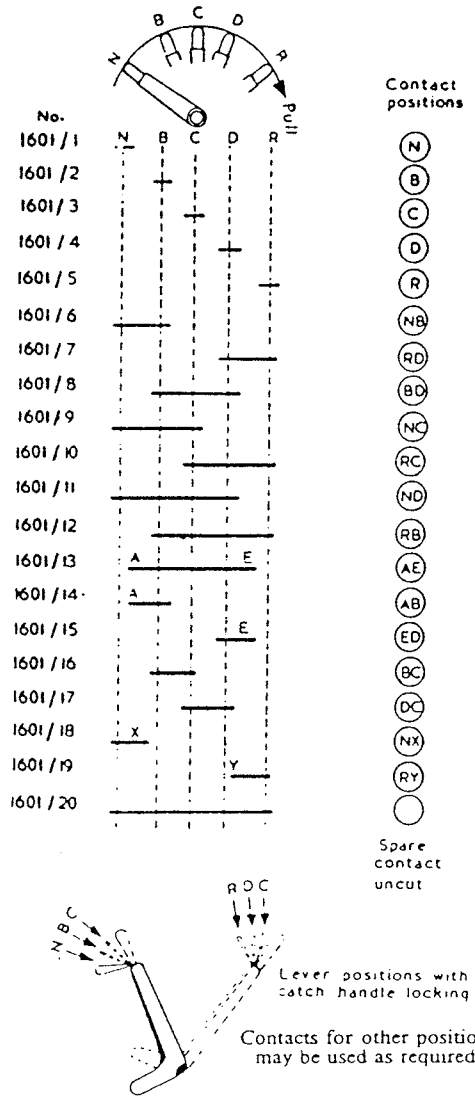
LEVER AND THUMB SWITCH CONTACTS

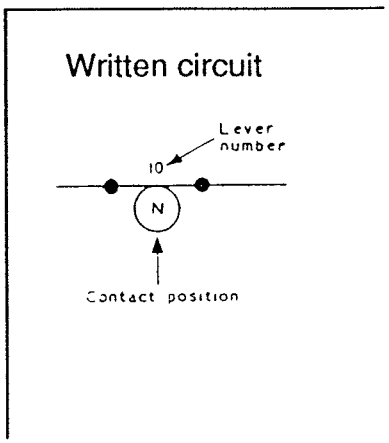
1601 Levers with extreme end position as normal.

N - Full normal position of lever.
B - Normal indication position.
C - Central position.
D - Reverse indication position.
R - Full reverse position.

In the illustration below, A, X, Y, E positions, contacts are just broken at N, B, D, R.

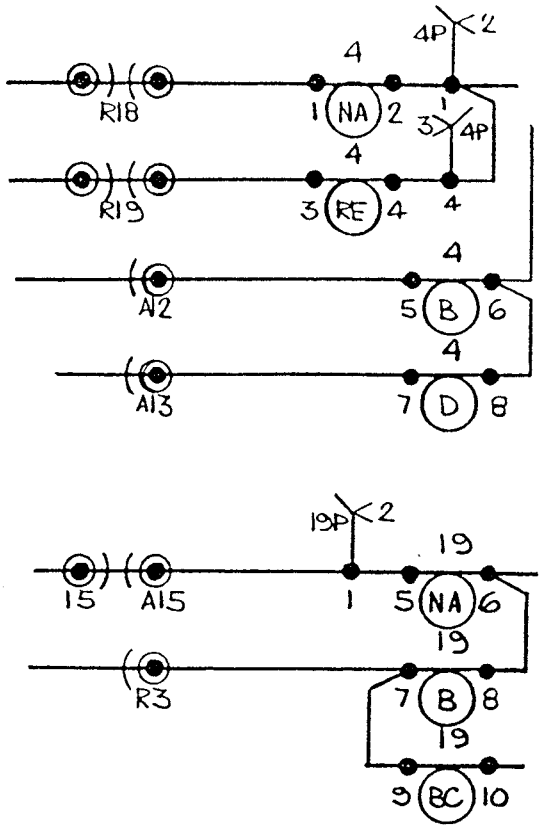
NOTE. Heavy horizontal lines indicate portion of cycle lever through which circuit is closed.





continued

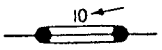
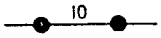
WIRING SYMBOLS

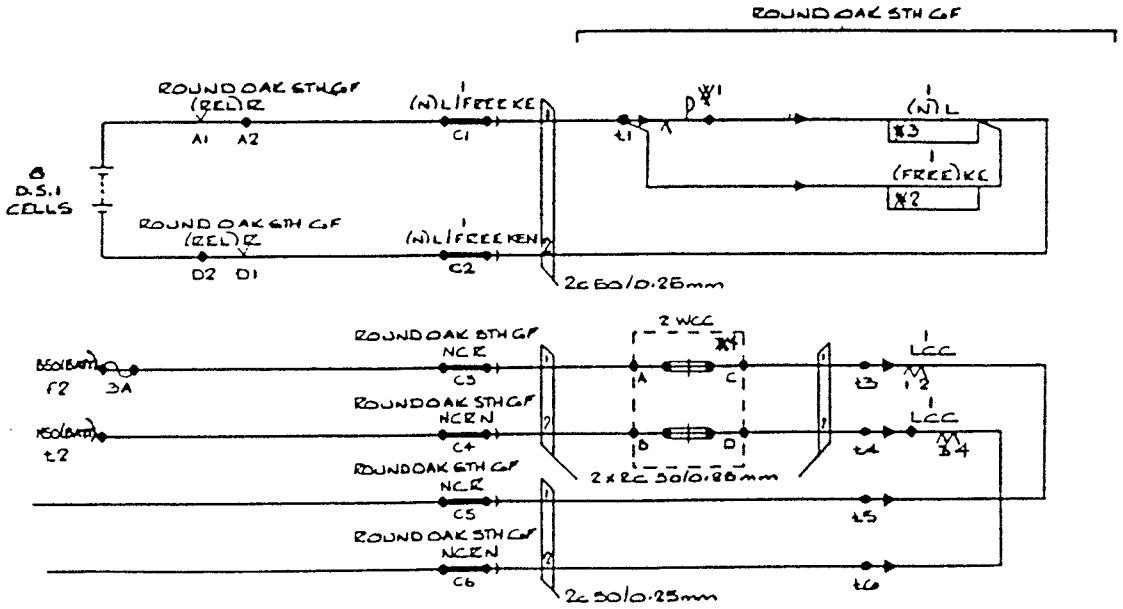


continued

SECTION 17

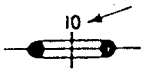
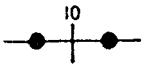
CIRCUIT CONTROLLERS OPERATED BY SIGNALS POINTS ETC.

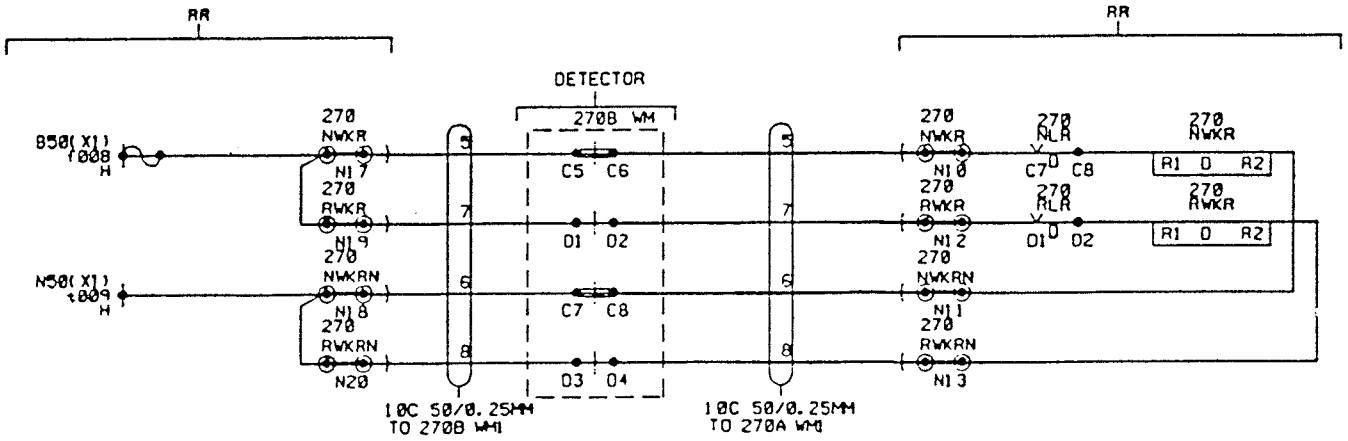
1713	WC	Detector contact, for points only.		Points number  Contact closed Points in normal position  Contact closed Points in reverse position



continued

WIRING SYMBOLS

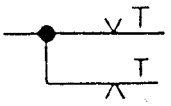
1715	WC	Detector contacts, for both points and bolts.		Point and bolt number or numbers  Contact closed Points in normal position, bolt in  Contact closed Points in reverse position, bolt in

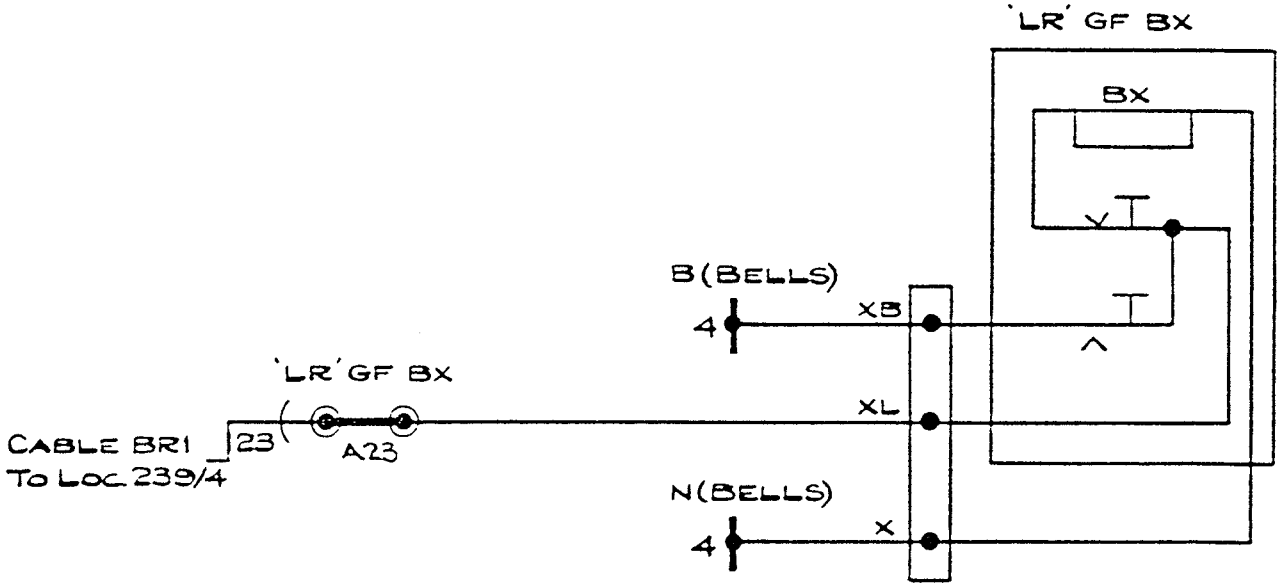


continued

SECTION 18

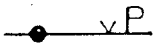
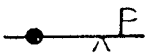
CONTACTS AND INTERRUPTERS, VARIOUS

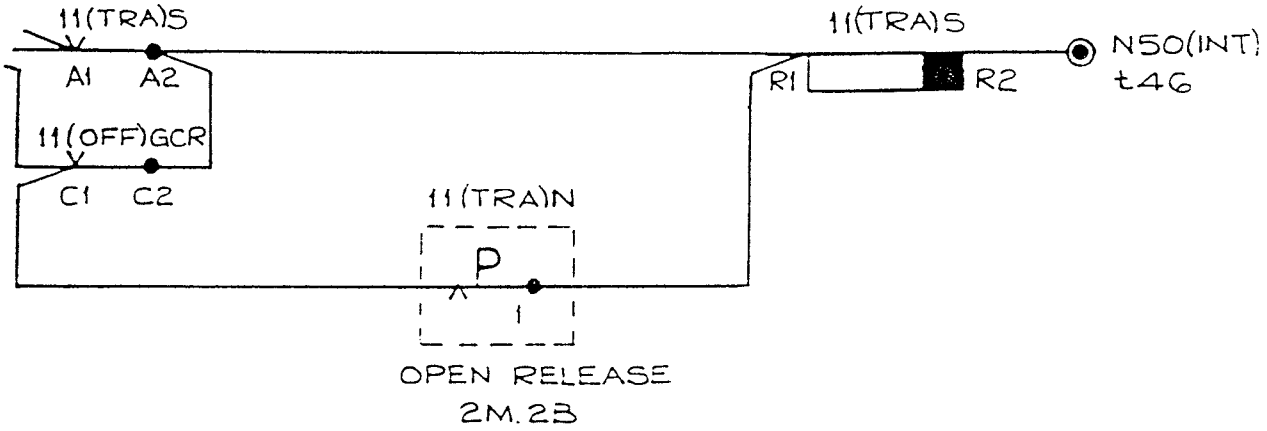
No.	Nomen-clature	Description	Written circuit
1801	N	Key 'break' and 'make'.	



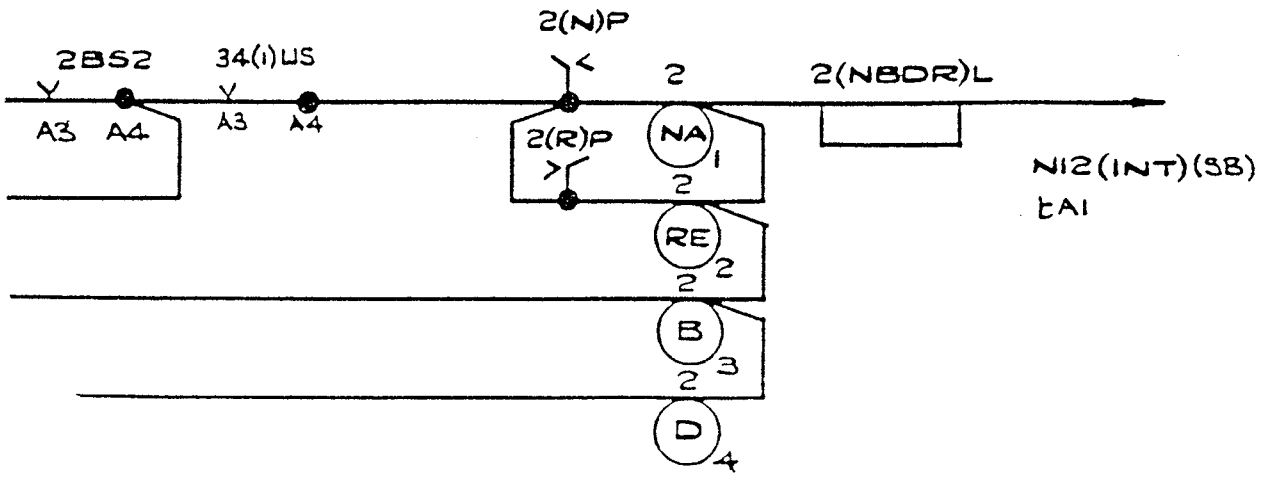
continued

WIRING SYMBOLS

1802	N	Push button or plunger, 'break'.	
1803	N	Push button or plunger, 'make'.	

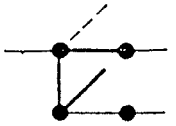


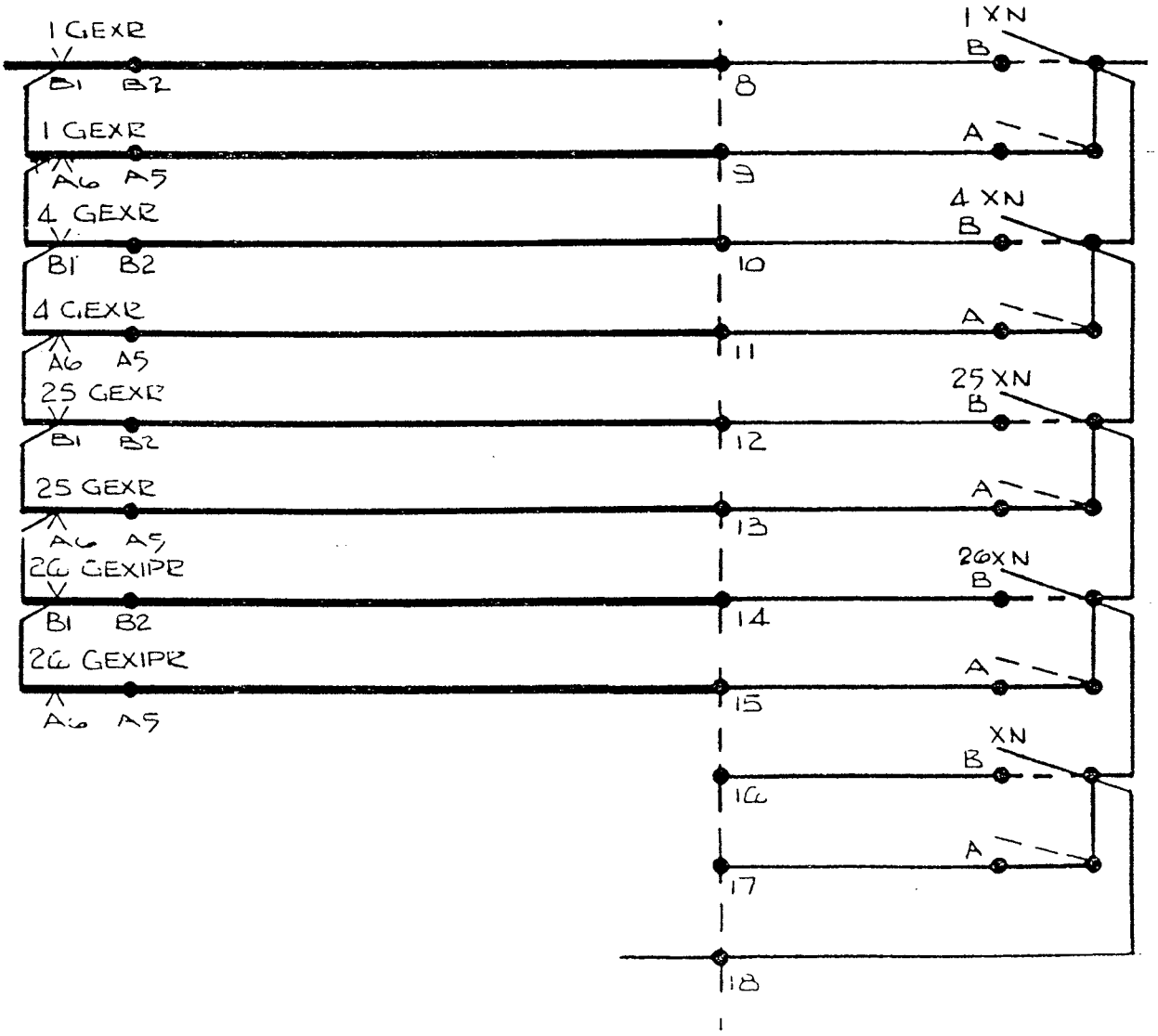
No.	Nomen-clature	Description	Written circuit	
1806	P	Latch, trigger or catch handle contact, one way.	Lever normal	Lever reversed
		Latch lifted.		



continued

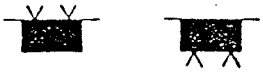
WIRING SYMBOLS

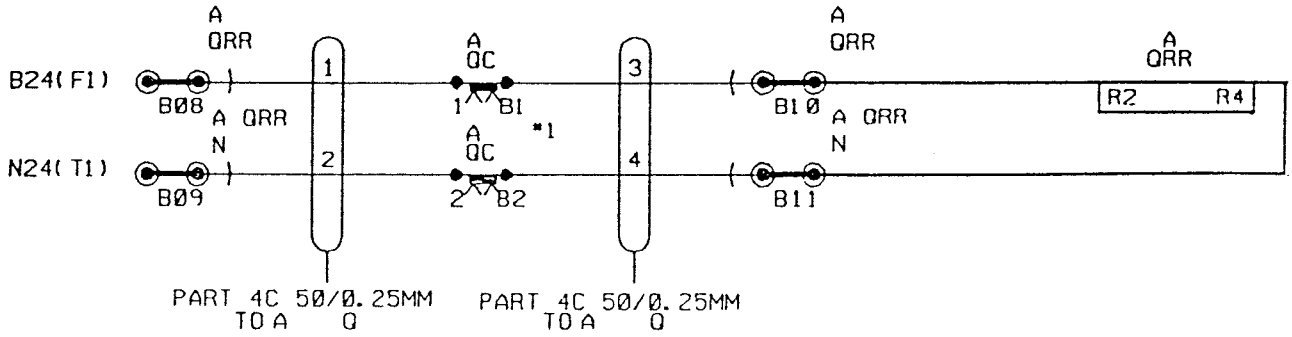
1808	N	Switch, one way, hand operated.		
1809	N	Switch, two way, hand operated.		Closed  Open



continued

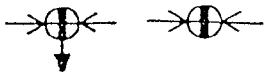
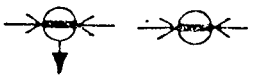
WIRING SYMBOLS

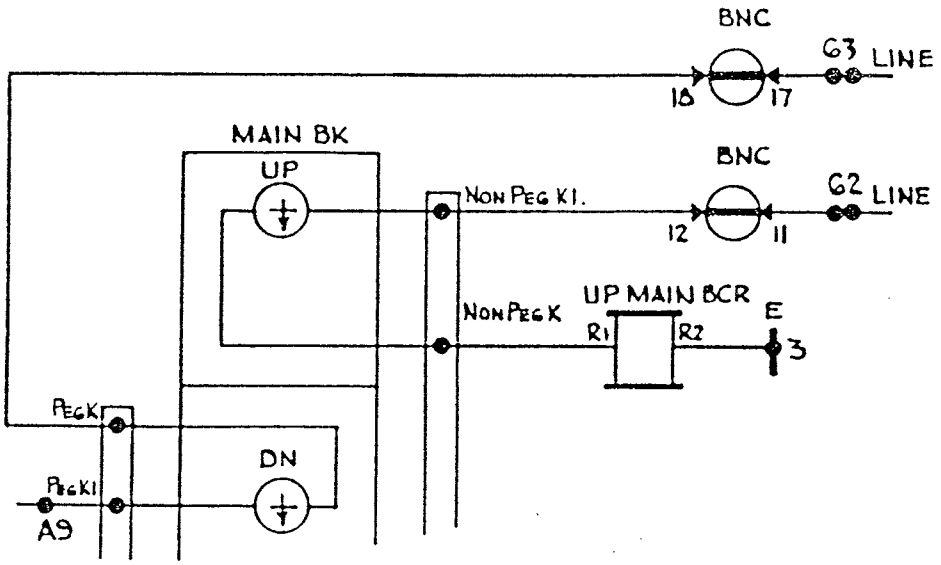
No.	Nomen-clature	Description	Written circuit
1810	C	Depression bar contact.	 Closed Open
1811	C	Treadle contact.	 Closed Open

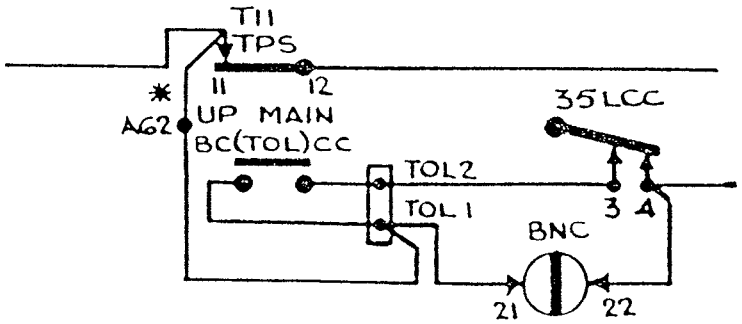


continued

WIRING SYMBOLS

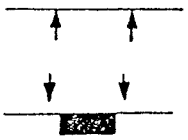
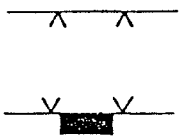
1814	N	Contact on signal box closing or block switch.	 Contact open With control Without control  Contact closed

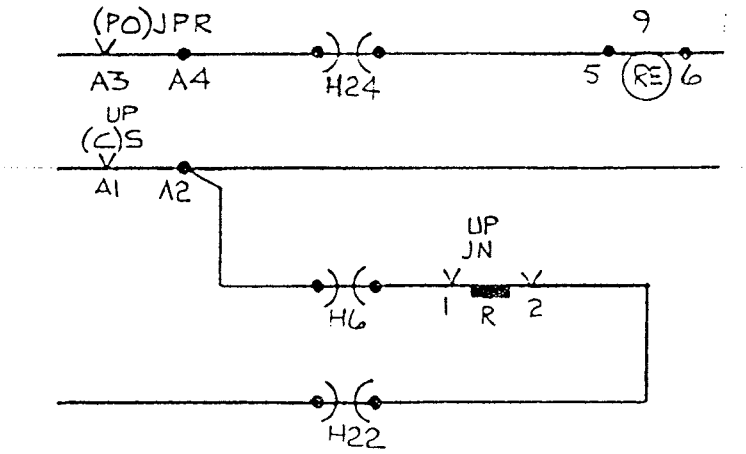




continued

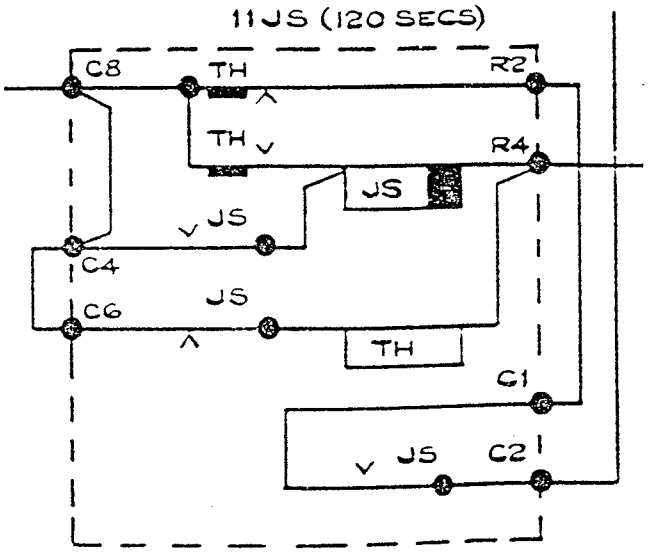
WIRING SYMBOLS

No.	Nomen-clature	Description	Wiring symbol	Written circuit
1815	JN	Time releases a. Manual. Normal contact Made after Release time.		



continued

	JR	b. Relay Time controlled contact (i) Front (ii) Back	 	



continued

RECOMMENDATIONS ON THE NOMENCLATURE FOR WIRING DIAGRAMS

In order to provide a concise graphic code for marking apparatus on wiring diagrams, the following system has been evolved which makes use of a designation made up of two parts, namely:-

1. Numerical prefix. The number of the principle lever, signal, track circuit etc...

2. Alphabetical term. Consisting of one or more letters. When the letter is used singly or finally it is used as a noun and designates the general kind of apparatus. Preceding letters, which are used as adjectives denote the purpose of the apparatus.

For example:- 10HR,

(Numerical Prefix)	(Prefix Letter)	(Final Letter)
10	H	R

10HR indicates a relay controlling the cautionary (Yellow) aspect of Signal No. 10.

In other words, the letter "R" means relay in general;
the letter "H" indicates that the function of this relay is to control the cautionary (Yellow) aspect;
and the number 10 definitely indicates the signal which this "caution" relay controls.

There follows some examples of common combinations:-

10(NBDR)L = Lock effective in normal, normal indication, and in reverse indication and reverse positions of Lever No. 10.

10DR = Relay controlling the clear aspect of Signal No.10.

29WKR = Relay for indicating or detecting the position of points worked by Lever No. 29.

AATPR = Relay repeating the relay of track circuit "AA".

continued

For your information the "Railway Coding" is as follows:-

Description term (Prefix letter)

A. Approach: Automatic.
B. Block; Bolt.
C. Checking or proving.
D. Clear (Green): Decoding.
E. Light; Heat (externally applied); Emergency; Earth.
F. Fog.
G. Signal.
H. Caution (yellow).
HH. Preliminary caution (double yellow).
I.
J. Time (Delayed action).
K. Indicating or detecting.
L. Locking; Left.
M. Marker; Magnetic.
N. Normal.
O. Retarder.
P. Repeating.
Q. Treadle or Bar.
R. Reverse; Right; Danger (red).
S. Stick.
T. Track Circuit.
U. Route (aspect displayed to be shown in brackets).
V. Trainstop.
W. Points.
X. Audible indicator (such as bell, buzzer, horn) Level or Highway Crossing.
Y. Slotting or disengaging.
Z. Special (to be explained on plan).
UP. Up (Direction of traffic).
DN. Down (Direction of traffic).
T.P.R. Track Repeating Relay.
T.P.S. Track Repeating Stick.
B.S.O. Block Stick Resistor.
A.W.S. Automatic Warning System.

continued

Apparatus (Last Letter)

A.
B. Block instrument.
C. Contact.
D.
E. Electrical lamp. (illuminating) Earth.
F. Fogging apparatus (e.g. detonator placer).
f. Fuse.
G. Signal apparatus, including light signals.
g. Lightning arrestor.
H. Capacitor.
I. Inductor.
J. Rectifier.
K. Indicator (visual).
L. Lock.
M. Motor.
N. Release, Hand operated switch; Push button or Key.
O. Resistor.
P. Lever latch or trigger contact.
Q. Local coil of double element relay.
R. Relay or contactor (line or track element of double element relay).
S.
T. Transformer; Transmitter.
t. Terminal.
U. Train description apparatus (for route indicating).
V. Trainstop apparatus.
W. Points operating apparatus.
X. Audible indicator (such as bell, buzzer, horn).
Y. Disengaging apparatus.
Z. Special unit (to be explained on plan).