

## SECTION B — PERFORMING OPERATIONS; TRANSPORTING

### B61 RAILWAYS

**B61L GUIDING RAILWAY TRAFFIC; ENSURING THE SAFETY OF RAILWAY TRAFFIC** (brakes or auxiliary equipment B61H, B61K; point or crossing construction E01B)

#### Note(s)

This subclass covers:

- devices along the route interacting with trains;
- signals;
- operation of points and signals;
- interlocking;
- block systems;
- level crossings.

#### Subclass index

DEVICES ALONG THE ROUTE ACTUATED BY, OR ACTING ON, THE TRAIN AT ITS PASSAGE.....1/00, 3/00

RAILWAY SIGNALLING, SWITCHING, BLOCKING, AND INTERLOCKING

Signals

per se, local operation mechanisms; remote control; control by passage of vehicles.....5/00, 7/00, 13/00

Points

local operation mechanisms; remote control; control by passage of vehicles.....5/00, 7/00, 11/00

switching systems of classification yards.....17/00

points and signals interlocking by a single device.....19/00

Scotch-blocks: local operation mechanisms; remote control.....5/00, 7/00

Station blocking.....21/00

TRAFFIC

Central control systems; recording and indicating traffic data; self-signalling.....27/00, 25/00, 15/00

Safety: means concerning railway traffic; protection of road crossings.....23/00, 29/00

ILLUMINATION OF POINTS, FORM SIGNALS, AND GATES.....9/00

SUBJECT MATTER NOT PROVIDED FOR IN OTHER GROUPS OF THIS SUBCLASS.....99/00

#### **1/00 Devices along the route controlled by interaction**

**with the vehicle or vehicle train** (detonators B61L 5/20; operation of points or signals by passage of the vehicle B61L 11/00, B61L 13/00; operation of gates, or gates and signals, by approaching vehicle B61L 29/18) **[1, 2006.01]**

1/02 • Electric devices associated with track **[1, 2006.01]**

1/04 • • mechanically actuated by a part of the vehicle **[1, 2006.01]**

1/06 • • actuated by deformation of rail; actuated by vibration in rail **[1, 2006.01]**

1/08 • • magnetically actuated; electrostatically actuated **[1, 2006.01]**

1/10 • • actuated by electromagnetic radiation; actuated by particle radiation **[1, 2006.01]**

1/12 • Electric devices associated with overhead trolley wires **[1, 2006.01]**

1/14 • Devices for indicating the passing of the end of the vehicle or vehicle train **[1, 2006.01]**

1/16 • Devices for counting axles; Devices for counting vehicles **[1, 2006.01]**

1/18 • Railway track circuits (rail joints E01B 11/00, e.g. insulated rail joints E01B 11/54) **[1, 2006.01]**

1/20 • Safety arrangements for preventing or indicating malfunction of the device, e.g. by leakage current, by lightning **[1, 2006.01]**

#### **3/00 Devices along the route for controlling devices on the vehicle or vehicle train, e.g. to release brake, to operate a warning signal [1, 2006.01]**

3/02 • at selected places along the route, e.g. intermittent control **[1, 2006.01]**

3/04 • • controlling mechanically **[1, 2006.01]**

3/06 • • controlling by electromagnetic or particle radiation, e.g. by light beam **[1, 2006.01]**

3/08 • • controlling electrically **[1, 2006.01]**

3/10 • • • using current passing between devices along the route and devices on the vehicle train **[1, 2006.01]**

3/12 • • • using magnetic or electrostatic induction; using radio waves **[1, 2006.01]**

3/14 • • to cut-off the power supply to traction motors of electrically-propelled vehicles **[1, 2006.01]**

3/16 • Continuous control along the route **[1, 2006.01]**

- 3/18 • • using electric current passing between devices along the route and devices on the vehicle or vehicle train [1, 2006.01]
- 3/20 • • • employing different frequencies or coded pulse groups [1, 2006.01]
- 3/22 • • using magnetic or electrostatic induction; using electromagnetic radiation [1, 2006.01]
- 3/24 • • • employing different frequencies or coded pulse groups [1, 2006.01]
- 5/00 **Local operating mechanisms for points or track-mounted scotch-blocks; Visible or audible signals; Local operating mechanisms for visible or audible signals** (B61L 11/00 takes precedence) [1, 2006.01]
- 5/02 • Mechanical devices for operating points or scotch-blocks [1, 2006.01]
- 5/04 • Fluid-pressure devices for operating points or scotch-blocks [1, 2006.01]
- 5/06 • Electric devices for operating points or scotch-blocks [1, 2006.01]
- 5/08 • Underground actuating arrangements, e.g. for tramways [1, 2006.01]
- 5/10 • Locking mechanisms for points; Means for indicating the setting of points [1, 2006.01]
- 5/12 • Visible signals [1, 2006.01]
- 5/14 • • Form signals, e.g. semaphore arms [1, 2006.01]
- 5/16 • • • Local operating mechanisms for form signals [1, 2006.01]
- 5/18 • • Light signals; Mechanisms associated therewith, e.g. blinders [1, 2006.01]
- 5/20 • Audible signals, e.g. detonator [1, 2006.01]
- 5/22 • • Devices for initiating the release of detonators in a certain position of a signal [1, 2006.01]
- 5/24 • • Replacement of detonators [1, 2006.01]
- 7/00 **Remote control of local operating means for points, signals, or track-mounted scotch-blocks** (B61L 11/00, B61L 13/00 take precedence; interlocking arrangements B61L 19/00) [1, 2006.01]
- 7/02 • using mechanical transmission, e.g. wire, lever [1, 2006.01]
- 7/04 • using fluid-pressure transmission [1, 2006.01]
- 7/06 • using electrical transmission [1, 2006.01]
- 7/08 • • Circuitry [1, 2006.01]
- 7/10 • • • for light signals, e.g. for supervision, back-signalling [1, 2006.01]
- 9/00 **Illumination specially adapted for points, form signals, or gates** [1, 2006.01]
- 9/02 • non-electric [1, 2006.01]
- 9/04 • electric [1, 2006.01]
- 11/00 **Operation of points from the vehicle or by the passage of the vehicle** [1, 2006.01]
- 11/02 • using mechanical interaction between vehicle and track [1, 2006.01]
- 11/04 • • Trailable point locks [1, 2006.01]
- 11/06 • • with fluid-pressure transmission [1, 2006.01]
- 11/08 • using electrical or magnetic interaction between vehicle and track [1, 2006.01]
- 13/00 **Operation of signals from the vehicle or by the passage of the vehicle** [1, 2006.01]
- 13/02 • using mechanical interaction between vehicle and track [1, 2006.01]
- 13/04 • using electrical or magnetic interaction between vehicle and track [1, 2006.01]
- 15/00 **Indicators provided on the vehicle or vehicle train for signalling purposes** [1, 2006.01]
- 15/02 • Head or tail indicators, e.g. light [1, 2006.01]
- 17/00 **Switching systems for classification yards** [1, 2006.01]
- 17/02 • Details, e.g. indicating degree of track filling [1, 2006.01]
- 19/00 **Arrangements for interlocking between points and signals by means of a single interlocking device** [1, 2006.01]
- 19/02 • Interlocking devices having mechanical or fluid-pressure operation [1, 2006.01]
- 19/04 • • Details, e.g. hand lever, back-signalling device [1, 2006.01]
- 19/06 • Interlocking devices having electrical operation [1, 2006.01]
- 19/08 • • Special arrangements for power supply for interlocking devices [1, 2006.01]
- 19/10 • • with mechanical locks [1, 2006.01]
- 19/12 • • • Details [1, 2006.01]
- 19/14 • • with electrical locks [1, 2006.01]
- 19/16 • • • Details [1, 2006.01]
- 21/00 **Station blocking between signal boxes in one yard** [1, 2006.01]
- 21/02 • Mechanical locking and release of the route; Repeat locks; Coupling of semaphores [1, 2006.01]
- 21/04 • Electrical locking and release of the route; Electrical repeat locks [1, 2006.01]
- 21/06 • Vehicle-on-line indication; Monitoring locking and release of the route [1, 2006.01]
- 21/08 • Order transmission and reception arrangements for giving or withholding permission [1, 2006.01]
- 21/10 • Arrangements for trains which are closely following one another [1, 2006.01]
- 23/00 **Control, warning or like safety means along the route or between vehicles or vehicle trains** [1, 4, 2006.01]
- 23/02 • for indicating along the route the failure of brakes [1, 2006.01]
- 23/04 • for monitoring the mechanical state of the route [1, 2006.01]
- 23/06 • for warning men working on the route [1, 2006.01]
- 23/08 • for controlling traffic in one direction only [1, 2006.01]
- 23/10 • • manually operated [1, 2006.01]
- 23/12 • • partly operated by train [1, 2006.01]
- 23/14 • • automatically operated [1, 2006.01]
- 23/16 • • • Track circuits specially adapted for section blocking [1, 2006.01]
- 23/18 • • • specially adapted for maintaining a safe distance between vehicles or vehicle trains depending upon speed and traffic density [1, 2006.01]
- 23/20 • • • with transmission of instructions to stations along the route [1, 2006.01]
- 23/22 • for controlling traffic in two directions over the same pair of rails [1, 2006.01]
- 23/24 • • using token systems, e.g. train staffs, tablets [1, 2006.01]
- 23/26 • • with means for actuating signals from the vehicle or by passage of the vehicle [1, 2006.01]
- 23/28 • • using non-automatic blocking from a place along the route [1, 2006.01]

23/30	• • using automatic section blocking [1, 2006.01]	29/04	• Gates for level crossings [1, 2006.01]
23/32	• • • with provision for the blocking of passing sidings [1, 2006.01]	29/06	• • yielding to vehicles in one direction but operated in a different direction [1, 2006.01]
23/34	• for indicating the distance between vehicles or vehicle trains by the transmission of signals therebetween [4, 2006.01]	29/08	• Operation of gates; Combined operation of gates and signals [1, 2006.01]
<b>25/00</b>	<b>Recording or indicating positions or identities of vehicles or vehicle trains or setting of track apparatus [1, 2006.01]</b>	29/10	• • Means for securing gates in their desired position [1, 2006.01]
25/02	• Indicating or recording positions or identities of vehicles or vehicle trains [1, 2006.01]	29/12	• • Manual operation [1, 2006.01]
25/04	• • Indicating or recording train identities [1, 2006.01]	29/14	• • • mechanically [1, 2006.01]
25/06	• Indicating or recording the setting of track apparatus, e.g. of points, of signals [1, 2006.01]	29/16	• • • electrically [1, 2006.01]
25/08	• • Diagrammatic displays [1, 2006.01]	29/18	• • Operation by approaching rail vehicle or rail vehicle train [1, 2006.01]
<b>27/00</b>	<b>Central traffic control systems [1, 2006.01]</b>	29/20	• • • mechanically [1, 2006.01]
27/02	• Manual systems [1, 2006.01]	29/22	• • • electrically [1, 2006.01]
27/04	• Automatic systems, e.g. controlled by train; Change-over to manual control [1, 2006.01]	29/24	• Means for warning road traffic that a gate is closed or closing, or that rail traffic is approaching, e.g. for visible or audible warning [1, 2006.01]
<b>29/00</b>	<b>Safety means for rail/road crossing traffic [1, 2006.01]</b>	29/26	• • mechanically operated [1, 2006.01]
29/02	• Guards or obstacles for preventing access to the route (cattle guards connected to the permanent way E01B 17/00) [1, 2006.01]	29/28	• • electrically operated [1, 2006.01]
		29/30	• • • Supervision, e.g. monitoring arrangements [1, 2006.01]
		29/32	• • • Timing, e.g. advance warning of approaching train [1, 2006.01]
		<b>99/00</b>	<b>Subject matter not provided for in other groups of this subclass [2006.01]</b>