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## Arrangement of Signals

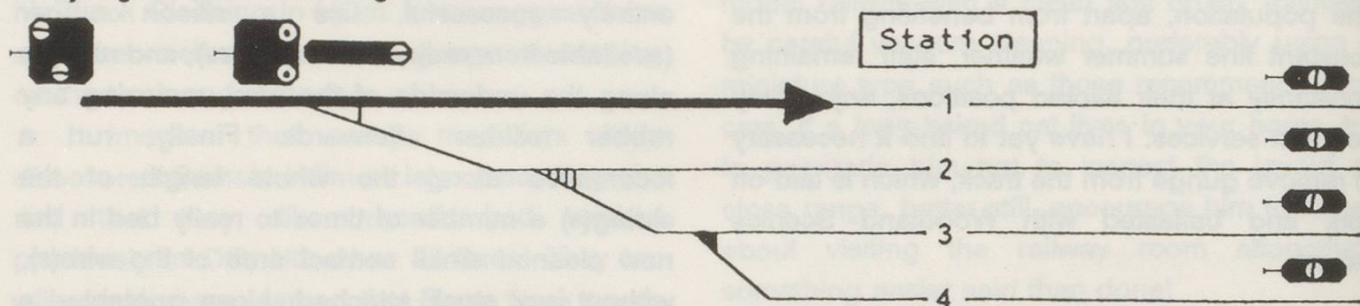
By John Jesson

*Concluded from page 17, Swiss Express September 1992*

### 1. Signalling for entry into a station

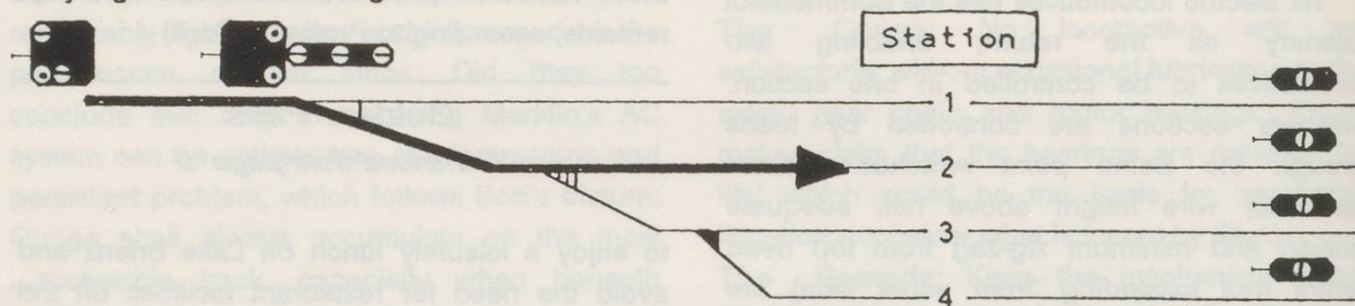
#### 1.1 Entry to track 1, at normal line speed

Entry signal shows *Fahrbegriff 1*.



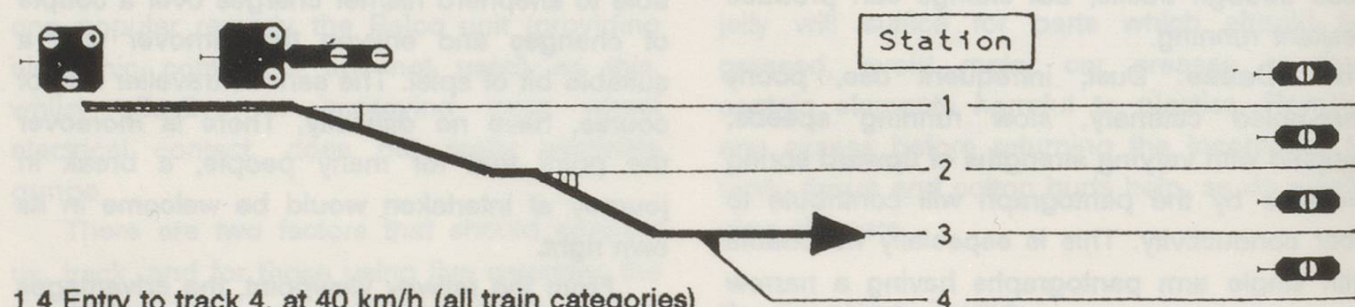
#### 1.2 Entry to track 2, at 95 km/h(category R) / 90 km/h (others)

Entry signal shows *Fahrbegriff 5*.



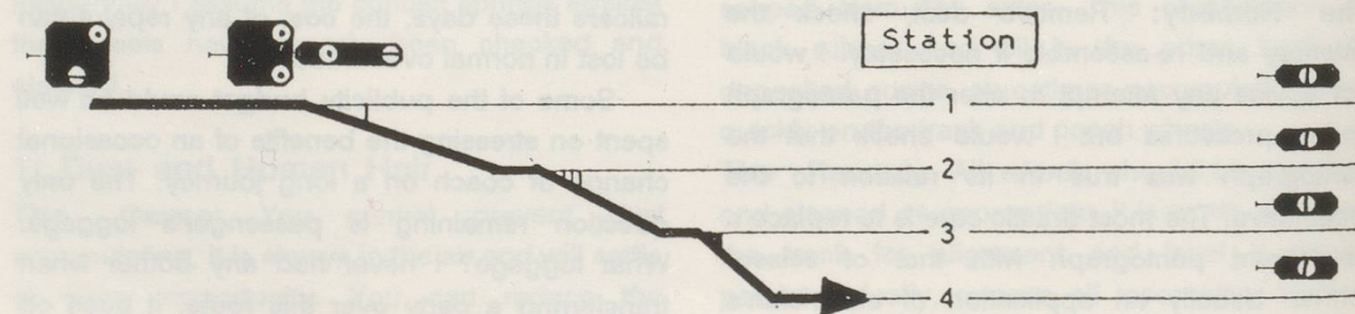
#### 1.3 Entry to track 3, at 65 km/h(category R) / 60 km/h (others)

Entry signal shows *Fahrbegriff 3*.

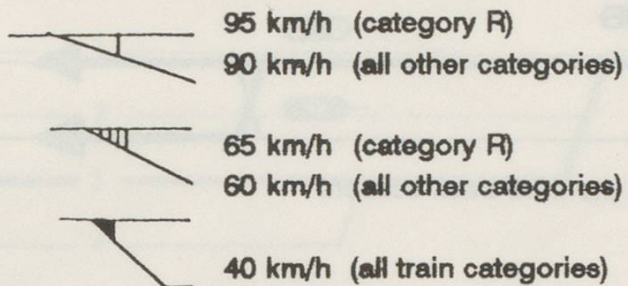


#### 1.4 Entry to track 4, at 40 km/h (all train categories)

Entry signal shows *Fahrbegriff 2*.

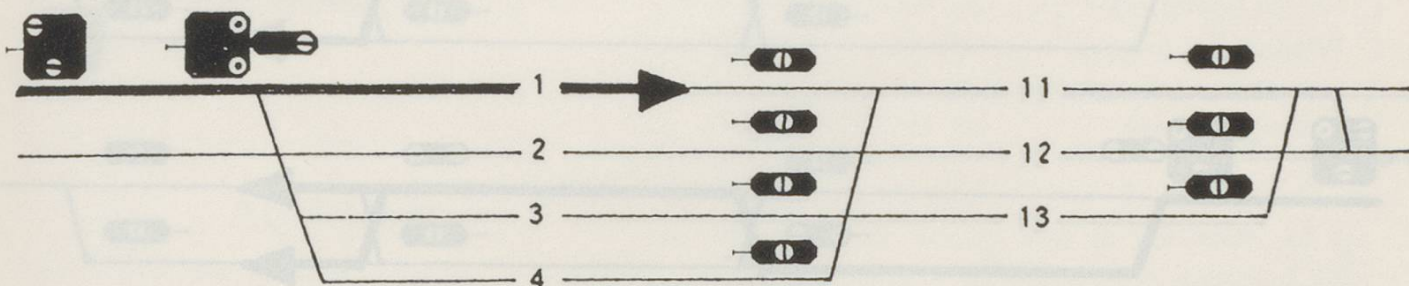


## Permitted speeds through points, and how they are shown on diagrams

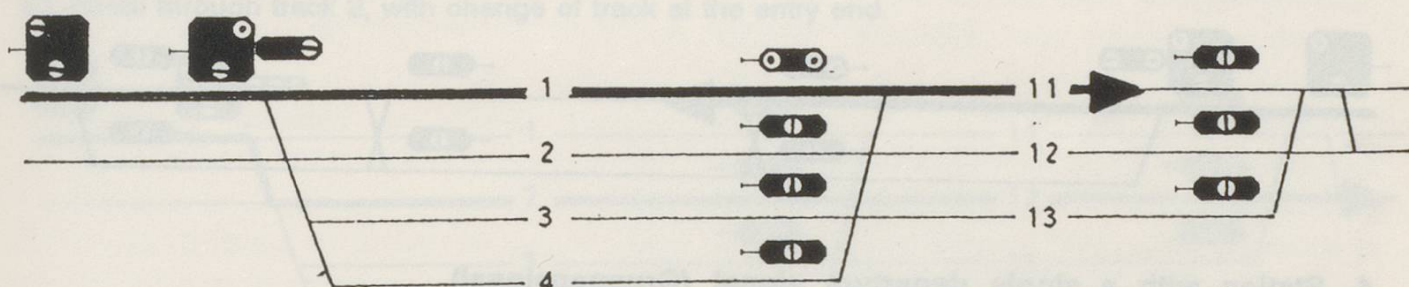


## 2. Signalling for entry into a station with 2 track sections.

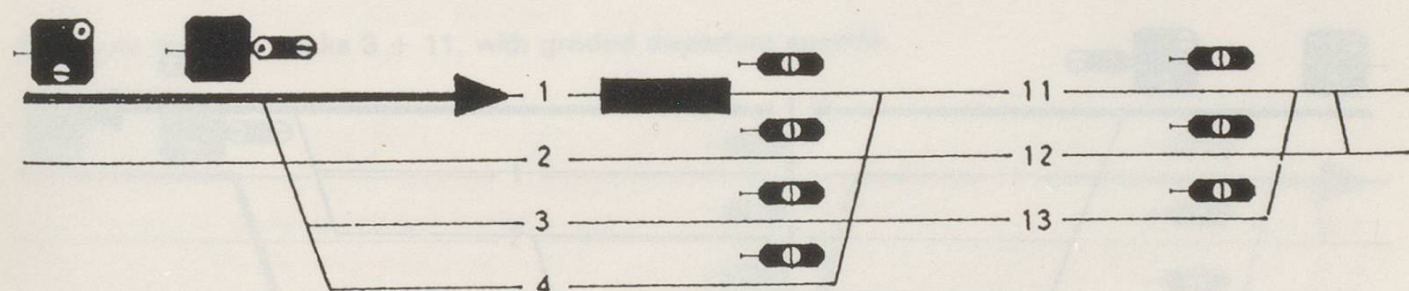
### 2.1 Normal entry into track 1.



### 2.2 Long entry into track 11.

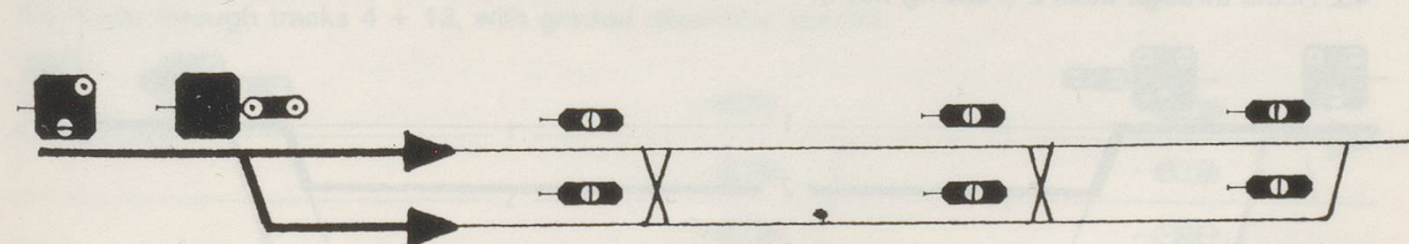


### 2.3 Entry into an occupied track 1.

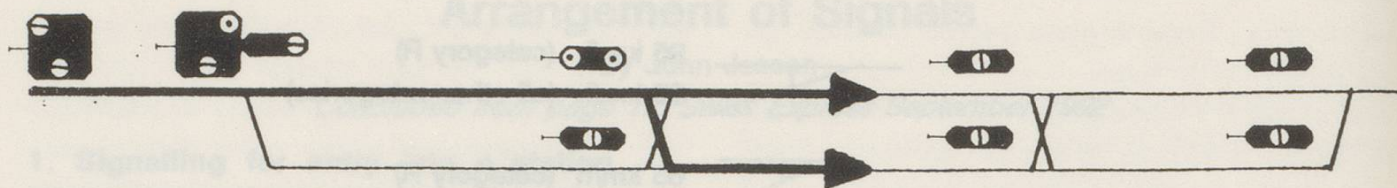


## 3. Signalling for entry into a station with 3 track sections.

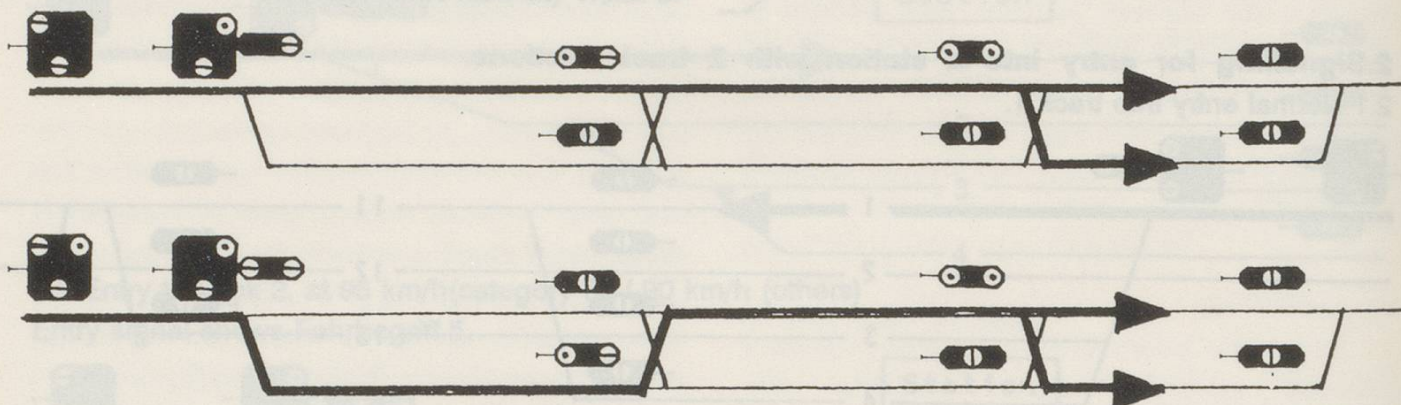
### 3.1 Short entry into the first track section.



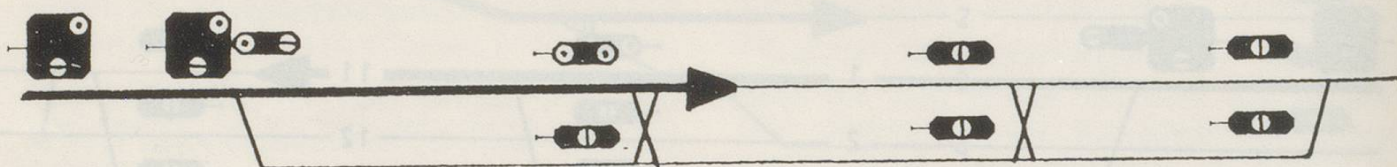
### 3.2 Normal entry into the second track section.



### 3.3 Long entry into the third track section.

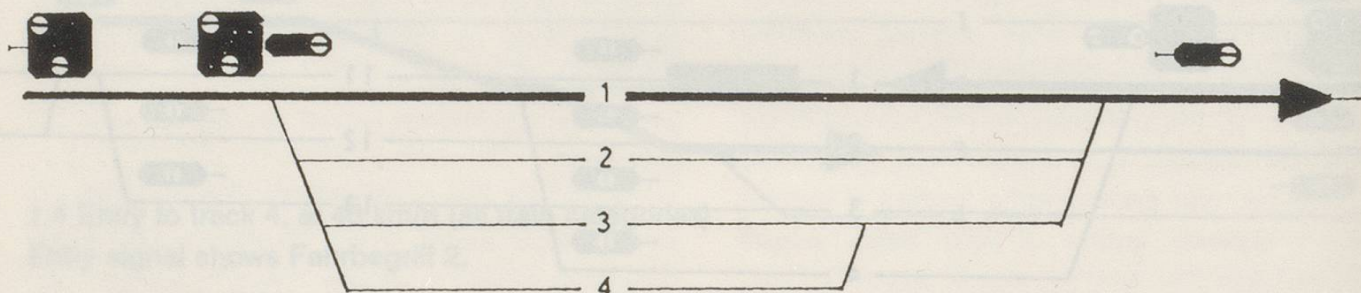


### 3.4 Entry into an occupied second track section.

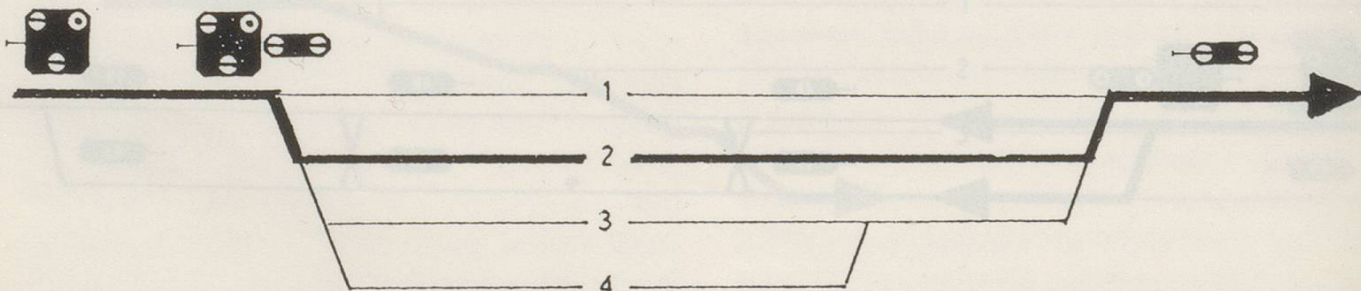


## 4. Station with a single departure signal (Gruppensignal)

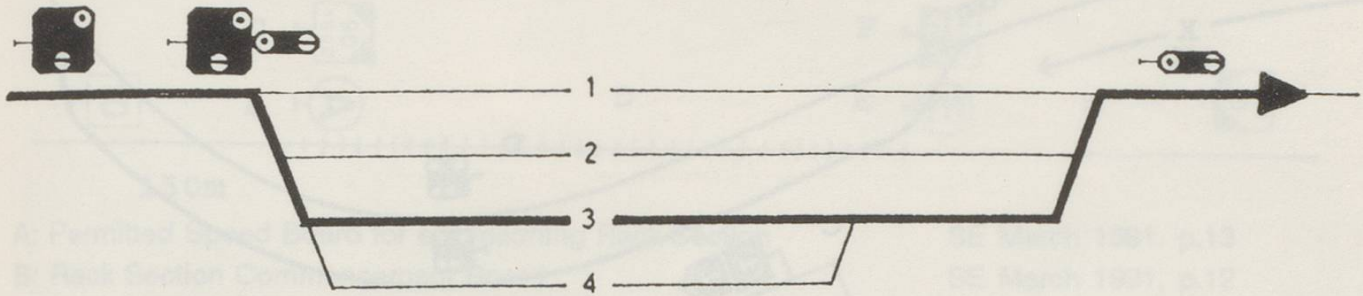
### 4.1 Route through track 1 (Normal track).



### 4.2 Route through track 2 (Passing track).

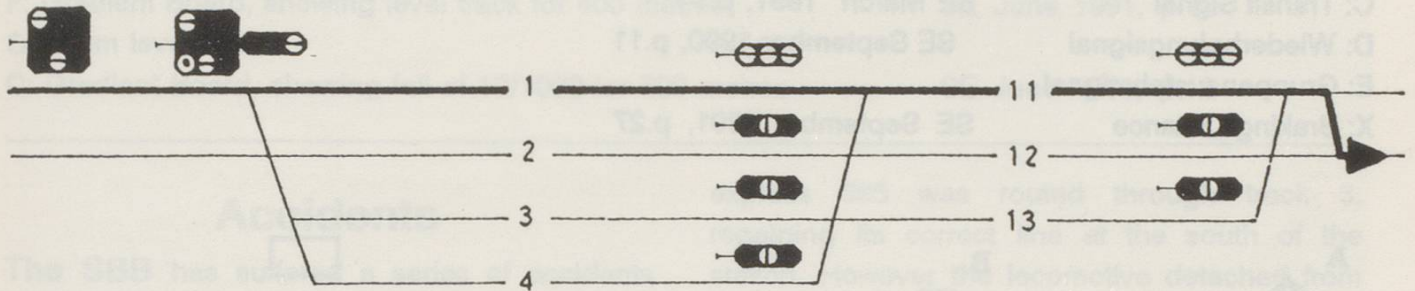


#### 4.3 Route through track 3.

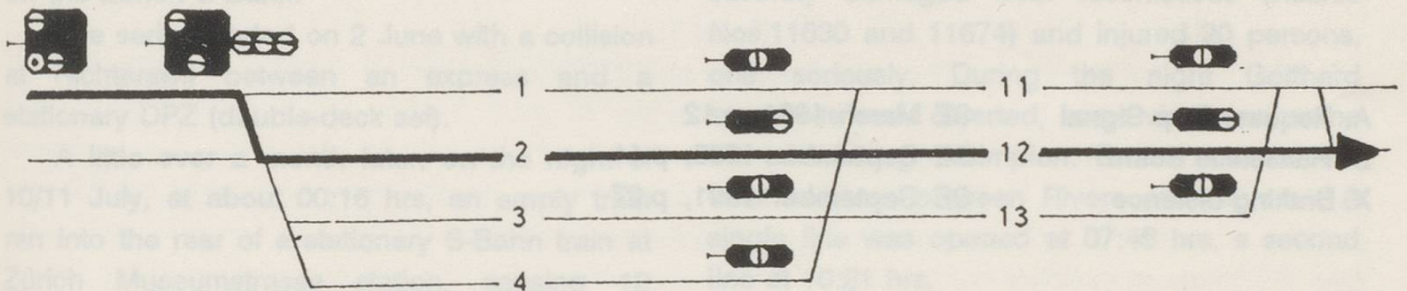


#### 5. Station with 2 track sections

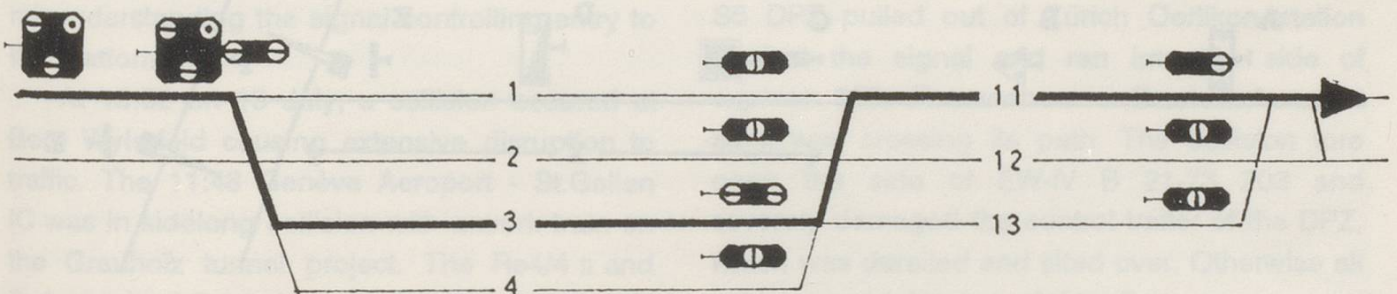
##### 5.1 Route through track 1, with change of track at the exit end.



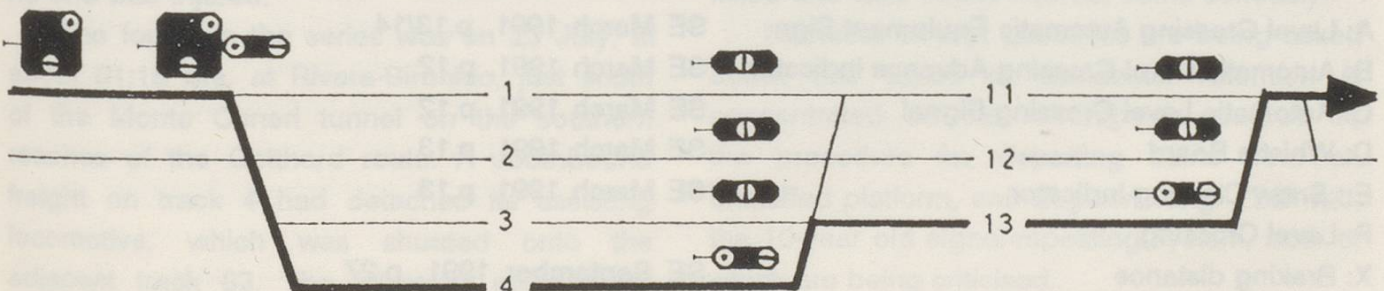
##### 5.2 Route through track 2, with change of track at the entry end.

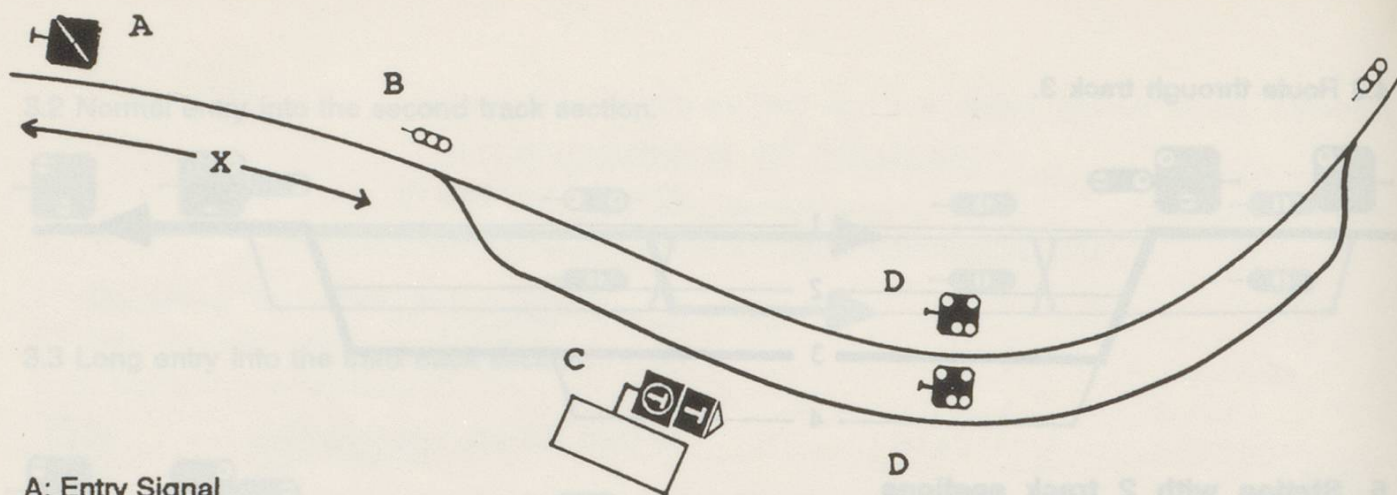


##### 5.3 Route through tracks 3 + 11, with graded departure speeds.



##### 5.4 Route through tracks 4 + 13, with graded departure speeds.





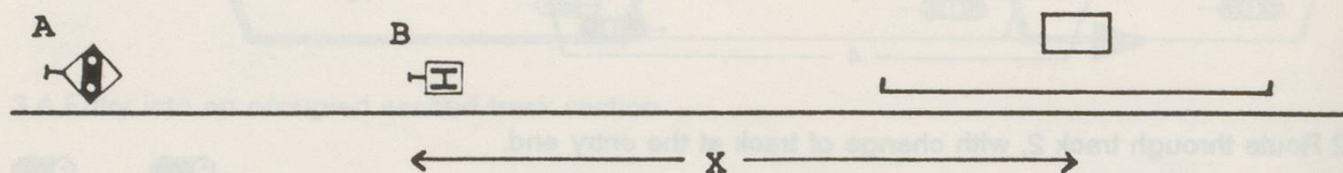
- A: Entry Signal  
 B: Fixed Signal  
 C: Transit Signal  
 D: Wiederholungssignal  
 E: Gruppenausfahrssignal  
 X: Braking Distance

SE September 1990, p.11

SE March 1991, p.14

SE September 1990, p.11

SE September 1991, p.27

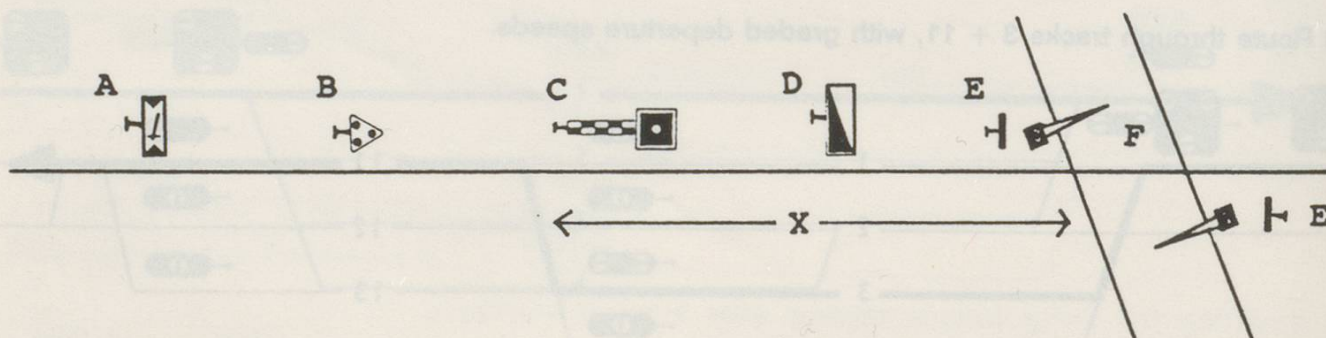


- A: Request Stop Signal  
 B: Haltestelle Board  
 X: Braking distance

SE March 1991, p.12

SE September 1990, p.11

SE September 1991, p.27



- A: Level Crossing Automatic Equipment Sign  
 B: Automatic Level Crossing Advance Indicator  
 C: Automatic Level Crossing Signal  
 D: Whistle Board  
 E: Snow Clearing Indicator  
 F: Level Crossing  
 X: Braking distance

SE March 1991, p.13/14

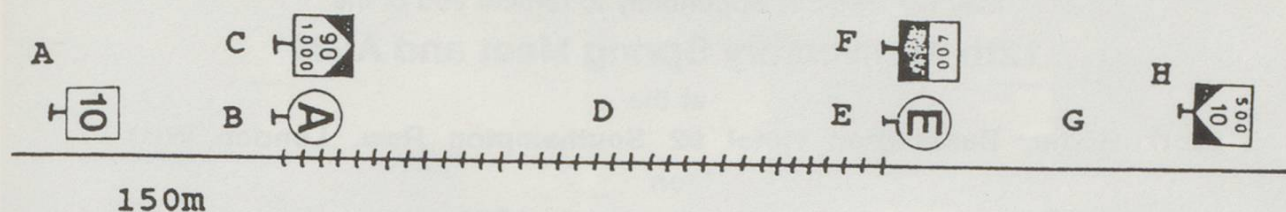
SE March 1991, p.12

SE March 1991, p.12

SE March 1991, p.13

SE March 1991, p.13

SE September 1991, p.27



A: Permitted Speed Board for approaching Rack Section	SE March 1991, p.13
B: Rack Section Commencement Board	SE March 1991, p.12
C: Gradient Board, showing rise of 90/1000 for 1000 metres	SE June 1991, p.12
D: Rack Section	
E: Rack Section Terminating Board	SE March 1991, p.13
F: Gradient Board, showing level track for 400 metres	SE June 1991, p.12
G: 400m level track	
H: Gradient Board, showing fall of 10/1000 for 500 metres	SE June 1991, p.12

## Accidents

The SBB has suffered a series of accidents during the summer. In the space of a little over two months, five have occurred, three of them on the Zürich S-Bahn.

The series started on 2 June with a collision at Richterswil between an express and a stationary DPZ (double-deck set).

A little over a month later, on the night of 10/11 July, at about 00:16 hrs, an empty train ran into the rear of a stationary S-Bahn train at Zürich Museumstrasse station, causing 12 injuries. The accident seems to have been caused by the driver of the empty train misunderstanding the signal controlling entry to the platform.

At 13:52 on 13 July, a collision occurred at Bern Wylerfeld causing extensive disruption to traffic. The 11:48 Genève Aeroport - St.Gallen IC was in sidelong collision with a work train on the Grauholz tunnel project. The Re4/4 II and first coach of the train were derailed, fortunately no-one was injured.

The fourth in the series was on 23 July, at about 01:15 hrs, at Rivera-Bironico, just south of the Monte Ceneri tunnel on the southern reaches of the Gotthard route. A southbound freight on track 4 had detached its assisting locomotive, which was shunted onto the adjacent track 83. The following southbound

express 385 was routed through track 3, regaining its correct line at the south of the station. However the locomotive detached from the freight erroneously moved from track 83 into the path of the express. The resultant collision severely damaged both locomotives (Re6/6s Nos.11630 and 11674) and injured 20 persons, one seriously. During the night Gotthard expresses were diverted, some via Luino, some via Lötschberg - Simplon. Buses covered the local services between Rivera and Taverne. A single line was opened at 07:45 hrs, a second line at 10:21 hrs.

In what, it is to be hoped, is the final accident of this unhappy summer, an S-Bahn S5 DPZ pulled out of Zürich Oerlikon station against the signal and ran into the side of express 538, Romanshorn - Genève Aeroport as it was crossing its path. The collision tore open the side of EW-IV B 21-73 203 and severely damaged the control trailer of the DPZ, which was derailed and tilted over. Otherwise all vehicles remained upright. One person was killed and nine others injured, some seriously.

Needless to say, questions are being asked about this series of accidents. Attention is concentrated on the *Abfertigungsmethode H*, the procedure for departing trains from an unstaffed platform, and *Zugsicherung ZUB 121*, the 10-year old signal-repeating system, both of which are being criticised..