***Translation of relevant chapters as selected by DB***

***Source “Reiden von treinen”***

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7.2 (520) Drive off to a normal railway in case of a known train position.

This application process describes the normal procedure of a proceeding, before the train drives, right after it was in running order, in the direction of an as unused installed railway.

**7.2.1 Origin**

1. the train is in running order, to drive in level 2 (conform -> [590])
2. the train position is known by the system ( in contradiction to -> [1030]).
3. there are no switches or rail crossings between the train and the signal ( in contradiction to ->[680])
4. There is a road build next to the signal ( in contradiction to -> [1060]).

The railway is in contrast to the unused trail installed as normal ( in contradiction to ->[530] ).

In figure 19 is a sketch of a situation given, before the drive off on a normal railway, with a well-known train position.

……..

**7.2.2 Response**

…….

* The (zugdienstleiter) request the system to install a normal railway from track ZC3 to track ZC4 and further (1,2)
* The conductor has put the train in running order and announces that to the system by using <Start> on the EtCS-operating tablet (3,4)
* The system demands the conductor to fasten the driving in sight sign (4,5). The conductor fastens the driving in sight (5.6) whereas the right of way becomes visible (6,7). Before the departure, the conductor makes sure that no other train is on the road between the ETCS-train and the departure signal (in the figure it is signal 4088)

After passing the signal 4088 the system gives a right of way for driving for complete technical secured driving (8.9)

|  |
| --- |
| SRAC\_A4\_155  When the conductor wants to depart with a driving permit for driving in sight, he has to contact the (zugdienstleiter) provided he makes sure that:   * the signal at the beginning is no longer in the rank stop, and * no other train is included on the intermediated railway. |

Notes:

1. For driving in sight for the Asd-Ut-line applies a speed limit of 40 km/h. The conductor has to assimilate the entire given rules for driving in sight.
2. The beginning and the end of every road, everywhere between the central operated region on the Asd-Ut-line, will be marked with a signal.
3. The conductor is never allowed to assume that he has a driving permit for driving in sight just because he pressed <Start>.
4. The conductor is never allowed to assume that he has a technically complete secured driving permit when he is passing the signal.

**7.2.3 Consequences of the procedure**

|  |  |
| --- | --- |
| User | Modification |
| Train operation manager | non |
| Conductor | Operation <Start> and installing driving in sight |

**7.3 [680] Drivin on a normal road in case there are switches between train and signal**

This application procedure describes the unusual situation before the departure of a train right after it has been set in running order, in the direction of an as unused setup trace, whereas switches are lying between train and signal.

Just as described in 7.1, there can be rail a crossing, warning installation, crossroad or a fixed road in opposite direction instead of the switch.

**7.3.1 Origin**

1. The train has been set in running order to drive in level 2 (conform -> [590])
2. The train position is known by the system ( in contradiction to ->[1030] ).
3. There are one or more switches between the train and the signal ( in contradiction to -> [530])
4. There is a road past the signal ( in contradiction to -> [1060])
5. The road is compared to the unused road (normal) adjusted.

In figure 21 is a sketch of a situation given, before the drive off on a new railway, with a switch between the frontside of the train and the beginning of the railway.

……

Figure 21 situation sketch before the driving off on a normal railway by known train position, whereas there is a switch between train and signal.

**7.3.2 Response**

**….**

The conductor gives the system the abandonment to install a normal railway from track ZC3 to ZC4 and further (1,2).

The conductor has set the train in running order and announces that to the system by using the etcs-operation-tablet (3,4). The conductor notices on the text message *get in contact with the train operation manager* that there is no driving permit given (4,5) and gets in contact with the train operation manager (5,6)

The zugdienstleiter ensures that all switches between train and signal 4088 are lying in the right position, are prevented and that debatable train moves are out of question (6,7,8). He can also do that by installing a ROZ-railway on train. The switch can of course only be use, when the switch section is being tied up by a train. After that he gives the conductor the permission to drive to signal 4088 (8,9).

Because the B&B-Au-System cannot perform technical permission, the conductor changes to ETCS level STM conforming the application process [600] *Manual switchover from ETCS-level 2 to ATBEG* (see 15.1) and drives under ATB off to a new railway conforming [640] *Driving off on a new railway in ETCS level STM* (see 7.6)

Noten:

1. The beginning and the end of every railway on the line-Asd-Ut in the central operated region will be marked with a signal.
2. In case there is an unused crossing between the train and his forthcoming, the train operation manager gives the instruction AKI/AHOB with the allowance to drive off to signal 4088.
3. In case there is a ROZ-railway under train, the train operation manager has to prevent that the following train enters the ROZ-railway.

**7.3.3 Consequences of the procedure**

|  |  |
| --- | --- |
| User | Modification |
| Train operation manager | Place, prevent the switches right and give permission to drive off to signal 4088 or install ROZ-railway |
| Conductor | Get in contact with the train operation manager before he continues to drive to signal 4088 (which is already out of standstill). Switchover to level STM with STM for ATB. |

**7.5 [1030] Drive off on a railway in case of an unknown train position**

This application process describes the process before the departure of the train, right after it was set in running order, in the direction of a installed railway, in case the system is not informed about the train position.

This happens, when the train “drives off cold” somewhere in the central operated region. All the information about the train position are deleted with the shutdown of the power supply. The information about the train position will be updated when the train passes a balise group.

**7.5.1 Origin**

1. The train is set in running order to drive in level 2 (conform -> [590])
2. The train position is not known by the system.
3. The train stands in a arbitrarily distance from the signal , before the last balise group.
4. Eventuel switches and crossings lie in the necessary position for the drive off of a train to the next following signal.
5. There is a railway installed from signal 4088 (and eventually further). This example will be elaborated over the situation for a (normal) railway with a unknown line.

In figure 25 is a situation sketch given

…….

Figure 25 is a situation sketch before the driving off on a railway by unknown train position

**7.5.2 Response**

**…….**

The train operation manager gives the conductor the order of installing a normal railway from track ZC3 to ZC4 (1,2).

The conductor reports the train as in running order to the system by using <Start> (3,4). instead of getting a driving permit, the conductor gets ask to get in contact with the train operation manager, because the train position is not known by the system (4,5)

The conductor is not allowed to drive without permission and therefore gets in contact (via GSM-R voice) with the train operation manager with the request to drive up up to signal 4088 (5,6).

After the train operation manager makes sure that the position the conductor gave him agrees with the railway which was installed at the beginning, he gives the conductor the permission to drive up to to the next following signal (6,7). If necessary intermediated switches which lie in the right position are prevented, afferent signals are prevented and ARI is out of gear (see -> [680]).

The conductor switches over to ETCS level STM conforming the application process [600], because the B&B-Au-system is not able to give technical permission (the train position is eventually unknown). *Manual switchover from ETCS-level 2 to ATBEG* (see § 15.1) and drives up under ATB to the new railway, conform [640] *Driving up to new railway in ETCS-level STM* (see § 7.6).

Noten

1. The conductor has to report the location to the train operation manager by the request to drive up (the signal number - or in case it is unreadable - the hectometer ring).
2. A conductor is never allowed to assume that he has got a driving permit just by pressing <Start>.

**7.5.3 Consequences of the procedure**

|  |  |
| --- | --- |
| User | Modification |
| Train operation manager | No permission, drive up to the next following signal |
| Conductor | Decision to switchover to ETCS level STM with STM for ATB |

**7.7 [1060] Departure of the train with the head standing past the signal**

This application process describes the course of action, before the departure of the train in which the head stands past the signal.

This situation takes place by the turing or kopmaken with a train which is so long, that the backside of the train stands past the counter signal, from which the train in the opposite direction must depart.

This does not concern the drive on with a doorgeschoten train, therefore see -> [1320].

**7.7.1 Origin**

1. The train is set in running order to drive in level 2 (conform -> [590]).
2. The train position is known by the system ( in contradiction to ->[1030])
3. The head of the train stands past the signal from which the train must the depart.
4. The train comes from the opposite direction.
5. After the departure a rest roadway leaves behind, because the section in front of signal 3908 was not freed after the arrival of the train in the opposite direction.

In figure 29 is a situation sketch given, before the departure of the train, which stands with the head past the departure signal. In this case there are several possibilities to make the train depart, like:

1. to ensure that the whole train stops in front of the departure signal (3908 for example);
2. departure with the aid of a STS railway in PRL; or
3. depart with a ROZ railway

…….

Figure 29 situation sketch of the departure train standing with the head past the signal

In this case is the preferred scenario 1) consisting of

1. stretching the railway from signal 3980 (see -> [510]);
2. reverse from end signal (see -> [580]);
3. install new railway from opposite signal, kopmaken of the train (see-> [590]) and drive up to a new railway (see ->[520])

In this chapter is presuming that the installation of a continuing railway from signal 3980 is impossible, the train has to depart from the current position and a ROZ railway under train will be installed.

**7.7.2 Response by the utilisation of a ROZ railway**

…….

Figure 30 interaction departure train with head past the signal with ROZ railway.

The conductor has set the train in running order for the departure in the opposite direction (see -> [1360]) and request the train operation manager the permission to depart (1,2).

The train operation manager notices that the train stands with the head past the signal 3908 and furthermore has left a continuing railway behind (2,3,4). The train operation manager clear the continuing railway in arrangement with the SMC. After that he installs a ROZ railway with a following normal railway (4,5) and gives the conductor the permission to drive up to signal 4507 (6,7).

The conductor uses <Start>. The conductor gets the announcement to get in contact with the train operation manger because the B&B-AU-system is not able to give technical Permission. On basic of this announcement, the conductor decides conforming the application process [600] *Manual switchover from ETCS-level 2 to ATBEG* to switch to level STM (for ATB) and conforming the application process [640] Drive up to a new railway in ETCS level STM drive up to a new railway (9).

Notes

1. When the conductor, after using <Start> in step 7, gets the request to install driving in sight, the B&B-AU-System is able to give a technical permission and is allowed to pursue it. As long as the conductor has not installed the driving in sight permission, the train won’t get any driving permission.
2. By clearing the continuing railway, a binding stop can be send to the train.

**7.7.3 Consequences of the procedure**

|  |  |
| --- | --- |
| User | Modification |
| Train operation manager | Setting the roadway in advance |
| Conductor | Decision to switchover to ETCS level STM with STM for ATB |

**7.8 [1060] Concluding the conductor wants to depart, but there is no continuing railway installed**

This concerns the unusual situation, which happens, when the conductor assumes that he can depart, but the train operation manager has not installed any railway.

(This process is equivalent to the signal, which keeps staying by red, because there is no railway installed.)

**7.8.1 Origin**

1. The train is set in running order (conform -> [590]).
2. The train is at a random position in the central operated region.
3. The conductor expected to normally drive past the signal.
4. There is no railway installed pass the signal (in contradiction to -> [520] or [530].

…………

Figure 31 situation sketch intention until the departure of the conductor while there is no railway installed.

In figure 31 is a situation sketch given, in which the conductor wants to depart but train operation manager has not install the railway yet.

**7.8.2 Response**

**……………**

Figure 32 Interaction in connection with the intention of the conductor till the departure, while there is no railway installed.

The conductor assumes that there is a railway installed. By using the ETCS-operation panel, he announces the system that the train is ready to depart (1,2).

The conductor doesn’t get any driving permission from the system, because there is no railway installed.

The conductor gets in contact with the train operation manager via GSM-R voice (3,4) and request to depart from signal 4088.

The train operation manager rejects the request (4,5), the conductor doesn’t depart.

**7.8.3 Consequences of the procedure**

|  |  |
| --- | --- |
| User | Modification |
| Train operation manager | Non |
| Conductor | Realises that there is no permission on the operation panel and decides to call |

**7.9 [1061] Departure procedure in yet to be set railway**

This concerns the unusual situation which makes sure, when the conductor assumes that

he can depart, while the train operation manager has not yet set him a railway, while this is the intention.

(This process is equivalent with the signal, which keeps staying on red, as long as there is no railway set.)

7.9.1 Origin

1. The train is set in running order (conform -> [590]).
2. The train stands right in front of the signal.
3. The conductor assumes to drive past the signal with a driving permit.
4. There is no railway set past the signal ( in contradiction to -> [520] or [530]).
5. It is the intention that the train operation manager installs a railway (this example concerns a normal railway; for ROZ an equivalent procedure).

In figure 33 is a situation sketch given.

………

Figure 33 situation sketch Departure procedure by too late installed railway.

**7.9.2 Response**

**……………………..**

Figure 34 Interaction in connection with the departure procedure by too late set railway.

The conductor assumes that there is a railway set.

He announces the system that he is in running order (1,2), by using <Start> on his ETCS-operation panel.

The conductor gets the request to get in contact with the train operation manager instead of getting a permission, because there is no railway installed (2,3).

The conductor gets (via GSM-R voice) in contact with the train operation manager (3,4) and requests to depart from signal 4088. The train operation manager still gives the system the order to set a normal railway from line ZC3 to ZC4 (4,5) and due to the PRl-screen he can see that the railway has enter (5,6).

The system gives the conductor the order to install driving in sight, because now there is a railway installed (5,7). After the installation by the conductor (7,8) the driving permit for driving in sight till signal 4088 becomes visible (8,9). After passing signal 40888 the conductor switches over to technically secure drive (10,11).

Noten

1. The conductor is never allowed to assume that he will get a driving permit for driving in sight, when he is approaching a signal.
2. Provided that there is no driving permit the train switches over to full technically secure driving after passing the signal. When the message “entry in full supervision” appears, the conductor is only allowed to take a higher speed, when the whole train has passed the signal.

**7.9.3 Consequences of the procedure**

|  |  |
| --- | --- |
| User | Modification |
| Train operation manager | Non |
| Conductor | Dialog operation panel |

**7.10 [1050] Follow up a railway after a standstill shorter than 2 minutes**

This application process describes the normal situation before the drive on of a train after a short stop (that is a scheduled or unscheduled stop shorter than 2 minutes)

**7.10.1 Origin**

1. The train makes a short stop (in contradiction to -> [1070])
2. The train has already start on the railway (the train has already got the permission for the railway) (conform ->[1070])
3. There is an automatically rest railway extricator configured at this point.

…………………..

Figure 35 situation sketch before the follow up of a railway after a standstill shorter than 2 minute.

In Figure 35 is a situation sketch given.

**7.10.2 Response**

**…………………**

Figure 36 Interaction in connection with a standstill shorter than 2 minutes

The train stops (1).

The conductor can put his train without any problem back into movement, by continuing to drive within 2 minutes (2).

Furthermore there are no more interactions with the train operation manager or B&B-AU-System.

Noten

1. Because the train is located on a trace where automatically rest railway extricator is configured, the rest railway vanishes after the termination of the configured time.

**7.10.3 Consequences of the procedure**

|  |  |
| --- | --- |
| User | Modification |
| Train operation manager | Non |
| Conductor | Non |

**7.11 [1070] Follow up a railway after a standstill longer than 2 minutes**

This application process describes the normal situation before the drive on of a train after an unscheduled stop longer than 2 minutes.

7.11.1 Origin

1. The train makes an unscheduled stop longer than 2 minutes (in contradiction to ->[1050]).
2. The train has already start on the railway and has already got the driving permit (conform -> [1050]).

In figure 37 is a situation sketch given.

…………………

Figure 37 Situation sketch before the follow up of a railway after a standstill longer than 2 minutes.

**7.11.2 Response**

………………

Figure 38 Interaction in connection with the follow up of a railway after a standstill longer than 2 minutes.

The train stops (1).

In case there is a standstill longer than 2 minutes, it is only allowed to drive on, after the conductor has got the permission of the train operation manager. as soon as the conductor wants to drive on, he gets in contact with the train operation manager, with the request to drive on (2,3). The train operation manager gives permission to drive on (3,4) and the conductor begins.

Attention: This is completely procedural determinate. The 2 minutes are not supervised by the system. As for the system the railway stays for indefinite period (except see -> [540]).

Noten

1. Because the train is located on a trace where automatically rest railway extricator is configured, the rest railway vanishes after the termination of the configured time.
2. The permission will change to driving in sight, by a standstill longer than 5 minutes, where there is no following railway installed (see-> [540]).

**7.11.3 Consequences of the procedure**

|  |  |
| --- | --- |
| User | Modification |
| Train operation manager | Non |
| Conductor | Non |

**7.12 [540] Follow up of a railway after a standstill longer than 5 minutes, whereby there is no following railway installed.**

this application process describes the normal situation before the train drives on, after a stop longer than 5 minutes, whereby there is no following railway installed.

**7.12.1 Origin**

1. The train makes a stop, longer than 5 minutes. This process concerns particularization of -> [1070]).
2. There is no following railway installed.
3. The train has already start on the railway.
4. The train is situated more than 50 meters in front of the signal.

In figure 39 is a situation sketch given.

…………….

Figure 39 situation sketch before the follow up of a railway after a standstill longer than 5 minutes, whereby there is no following railway installed.

**7.12.2 Response**

…………………….

Figure 40 interaction in connection with continuing the railway aftrér a standstill longer than 5 minutes, whereby there is no following railway installed.

The train stops (1).

In case there is a standstill longer than 5 minutes, the system orders to change over to driving in sight (2,3). The conductor sets that (3,4) and can only drive on in sight (4,5).

According to the handbook,in case of a standstill longer than 5 minutes the conductor is only allowed to drive on, when the conductor has therefore get the permission of the train operation manager. The moment the conductor wants to drive on, he gets in contact with the train operation manager with the request to drive on (6,7). The train operation manager gives the permission (7,8) after what the conductor drives the rest of the railway in sight.

|  |
| --- |
| SRAC\_AU\_155  The conductor has to get in contact with the train operation manager, when he wants to get a driving permit for driving in sight, provided that he can be sure that:   * the signal before the railway is out of the stand stop; and * there is no other train on the intermediated railway. |

Noten

1. The railway stays under train, even after the transition to OS-mode. There can no other railway be installed across that. The railway under tran can vanish, when the train is situated on a line where automatical rest railway extricator is configured.
2. In case the train is located on a trace where automatically rest railway extricator is configured, the rest railway vanishes after the termination of the configured time. A change from full technical secure driving (Full supervision) to driving in sight (On sight) will also take place.
3. The brakes will be activated , when the conductor does not install the driving on sight within 5 minutes (also when the train stands still).
4. The switchover to driving on sight will not be accomplished in case the train is situated less than 50 meters in front of the signal.
5. The permission for full technical driving will immediately be converted to driving in sight, when the train is located on a track where automatical rest railway extricator is configured and a railway with driving on sight is installed under train. This also happens when the train does not yet stand still for 5 minutes or the train has disappeared at less than 50 meters in front of the signal.For the switchover to driving in sight, it doesn’t matter if the the railway with driving in sight is installed in the opposite direction
6. The conductor has to fully adjust the existing regulations for driving on sight.
7. The conductor is never allowed to assume that he has got a full technical secure driving permit, when he passes the signal.

**7.12.3 Consequences of the procedure**

|  |  |
| --- | --- |
| User | Modification |
| Train operation manager | Non |
| Conductor | Installation of switchover to driving in sight |

22h30

9h30

**8. Driving of the train**

The application processes for the driving under ETCS level 2 will be described in this chapter. This concerns processes for:

* The driving under ETCS level 2;
* The driving on smooth track;
* The switchover from full technical secure driving to driving in sight and vice versa;
* The driving under a temporary speed limit.

**8.1 [510] The driving under ETCS-level 2 in ATBEG/ETCS-level 2 overlay secure region**

This application process describes the normal situation for driving under ETCS-level 2 in a ATBEG/ETCS-level 2 overlay secure region.

**8.1.1 Origin**

1. A railway will be set (from track 834 to track UE1).
2. A follow up railway will be set (from track UE1 to track UE3).
3. The train has a driving permit for full technical secure driving until signal 3908.

In figure 41 is a situation sketch for driving under ETCS level 2 given. In this sketch, a train already drives on the first railway.

………………….

Figure 41 situation sketch driving train

**8.1.2 Response**

……………..

Figure 42 behaviour chains driving train under ETCS-level 2

The train operation manager departes, in succession a setting order for the railway from track 834 to track UE1 (1,2) and the follow up railway from track UE1 to UE3 (4,5). The driving permit of the train will be extended after the setting of the railway (2,3) en (5,6).

The train drives off his road (7). On basic of status changes as a result of the driving of the train (such as changes in section occupation), the train operation manager receives, via the PRL-screen, information concerning the track occupation and remaining railway (9,10) and the conductor gets informed about the driving permit via his operation panel (9,7).

Hereby the system provides that a follow up railway is available, the driving permit of the train is extended on time, so that the train can drive on on his road without any problem (that is without explosive, undesirable influence of the speed profile).

Noten

1. The conductor is not allowed to pass a stop-showing sign without instruction STS or permission from the train operation manager (also not while driving on cabinal signal ring under ETCS-level 2).
2. In the situation where the train receives an unexpected braking, the conductor has to bring the train to a standstill en get in contact with the train operation manager (see chapter 13 Malfunctions and irregularities).
3. Driving in prestressing until exclusively allowed as the secure function under ETCS-level 2 shown by the transporter.

**8.1.3 Consequences of the procedure**

|  |  |
| --- | --- |
| User | Modification |
| Train operation manager | Non |
| Conductor | Driving on cabinal signal ring |

**8.5 [550] The driving under a temporary speed limit**

This application process describes the acts for driving under a temporary speed limit

**8.5.1 Origin**

1. The train drives off full technical secure or on sight on the granted railway;
2. The temporary speed limit is set by the infrastructure manager;
3. A speed limit is operative on the railway assigned to the train.

In figure 50 is a situation sketch given for the driving under a temporary speed limit. The train drives off his road full technical secured (in mode Full Supervision).

……………………

Figure 50 situation sketch for temporary speed limit

A speed can merely be perform by a temporary speed limit. by the setting of a speed limit, the lowest of the 2 speeds is always used. That means that a train where the highest speed applies, nevertheless is forced to use the more restrictive lower speed.

**8.5.2 Response**

……………………..

Figure 51 Interaction driving under a temporary speed limit

A temporary speed limit is implemented by the system, the temporary speed limit is included in the statistic speed profile by the driving authorization (1,2)

The inserted temporary speed limit is forced by the system as soon as the frontside from the train passes the A-board (3,4).

By passing the E-board with the backside of the train, the conductor is allowed to set on.

|  |
| --- |
| SRAC\_AU\_175  When the conductor perceives a temporary speed limit instead of a A-board, that is not the lowest speed given by the L-board forced by the ETCS-system, the conductor must announce that to the train operation manager. The train operation manager gets in contact with the infrastructure manager to revise the situation. |

Noten

1. On the speed panel can 2 speeds be shown by a temporary speed limit. The lowest of the 2 speeds will be forced by the system.
2. A temporary speed limit with a maximum speed lower than 40 km/h should not be forced by the system, if the train drives procedural secured.
3. In case a temporary speed limit is given for a part of the railway and a level 2 train has a driving permit for that same part, then the train won’t receive a temporary speed limit.
4. In case a temporary speed limit with 2 speeds is set in the region, where the entry after ETCS level 2 is made (The E-board in ETCS L2 region or the A- and the E-board in ETCS L2 region), the train will be forced to the lowest of to 2 speeds after the transition. A braking will attend, if the conductor does not take that into account.
5. In case a temporary speed limit is set in the region where the exit transition to ETCS level STM is made (the L-board in the ETCS L2 region or the L- and the A-board in the ETCS L2 region), the conductor has to obey the temporary speed limit that is visible on the DMI after the transition is made. This also applies when ATB code for a lower speed is perceived.
6. When the conductor encounters L, A and E boards and the speed limit is invisible on the operation panel, the speed must be adjusted conforming the speed limit given on the L board.
7. A temporary speed limit that is installed in the ETCS system applies for both directions. It is impossible to make the temporary speed limit only apply for one direction. When L-, A- and E-boards are set in only one driving direction, the temporary speed limit will still be forced into the ETCS system. In this case the conductor won’t pass any L-, A- and E-boards.

8.5.3 Consequences of the procedure

|  |  |
| --- | --- |
| User | Modification |
| Train operation manager | Non |
| Conductor | The conductor of a train for which the highest speed applies will be forced to the restrictive lower speed, by a TSB with different speeds for passenger trains and freight trains. |