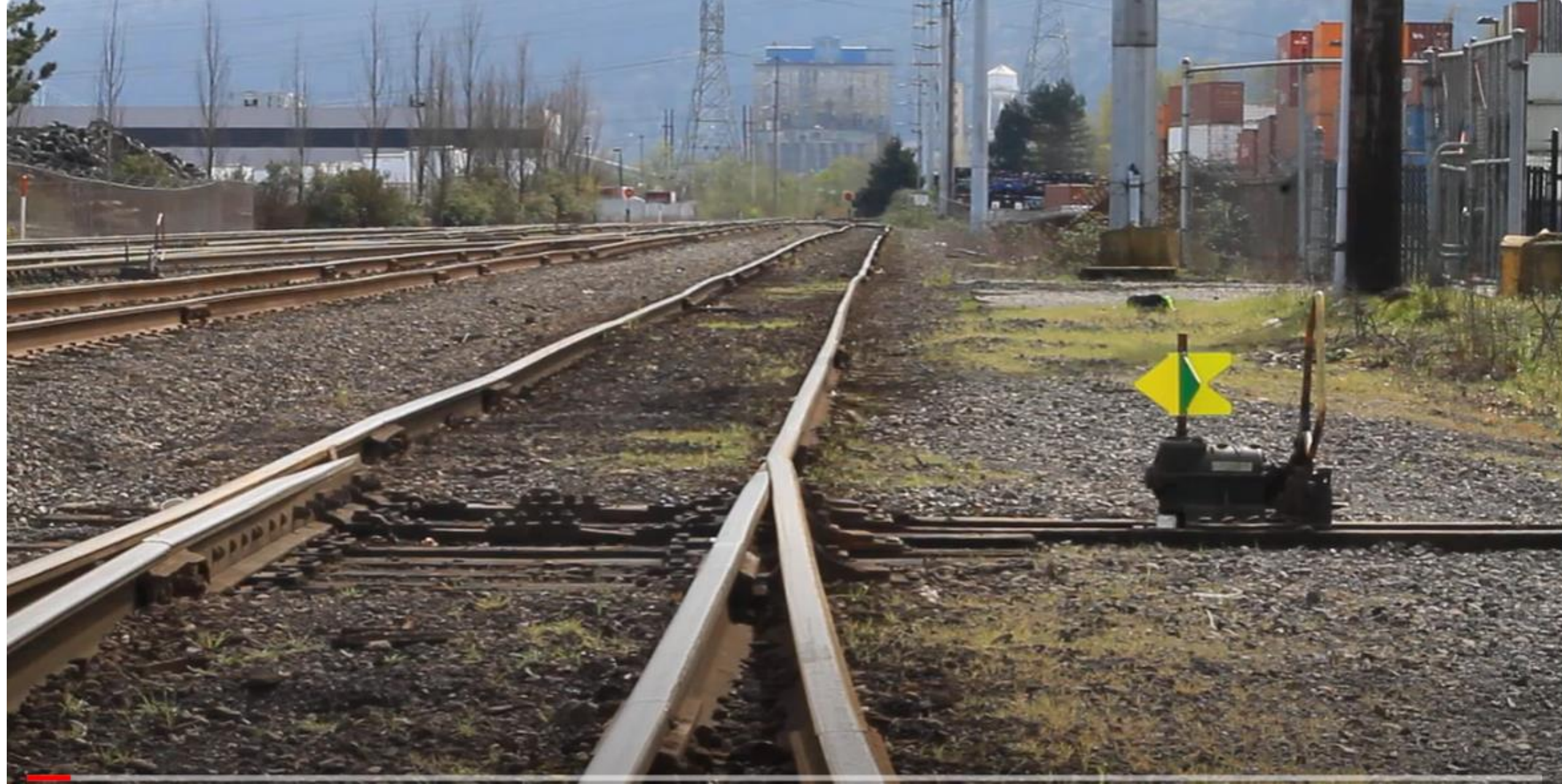


Points, setting and operation



MCEM91T - Trailable point machine



•**Trailable Point Machines:**

- These machines allow the points to be trailed¹.
- They include a trailing disc that enables switch trailing, while protecting the point machine².
- They are used for conventional lines such as railway depots and for urban transport such as metro².
- A rod provides the drive function².

•**Non-Trailable Point Machines:**

- These machines do not allow the points to be trailed³⁴.
- They are used in places where trailing is not required or desired³⁴.

For videos explaining these concepts, you can refer to the following links:

- S 700 K point machine - Siemens
- MCEM91T - Trailable point machine - Vossloh
- Switchguard Series 84M MkIII Point Machine - Siemens
- CG Global - Product Details

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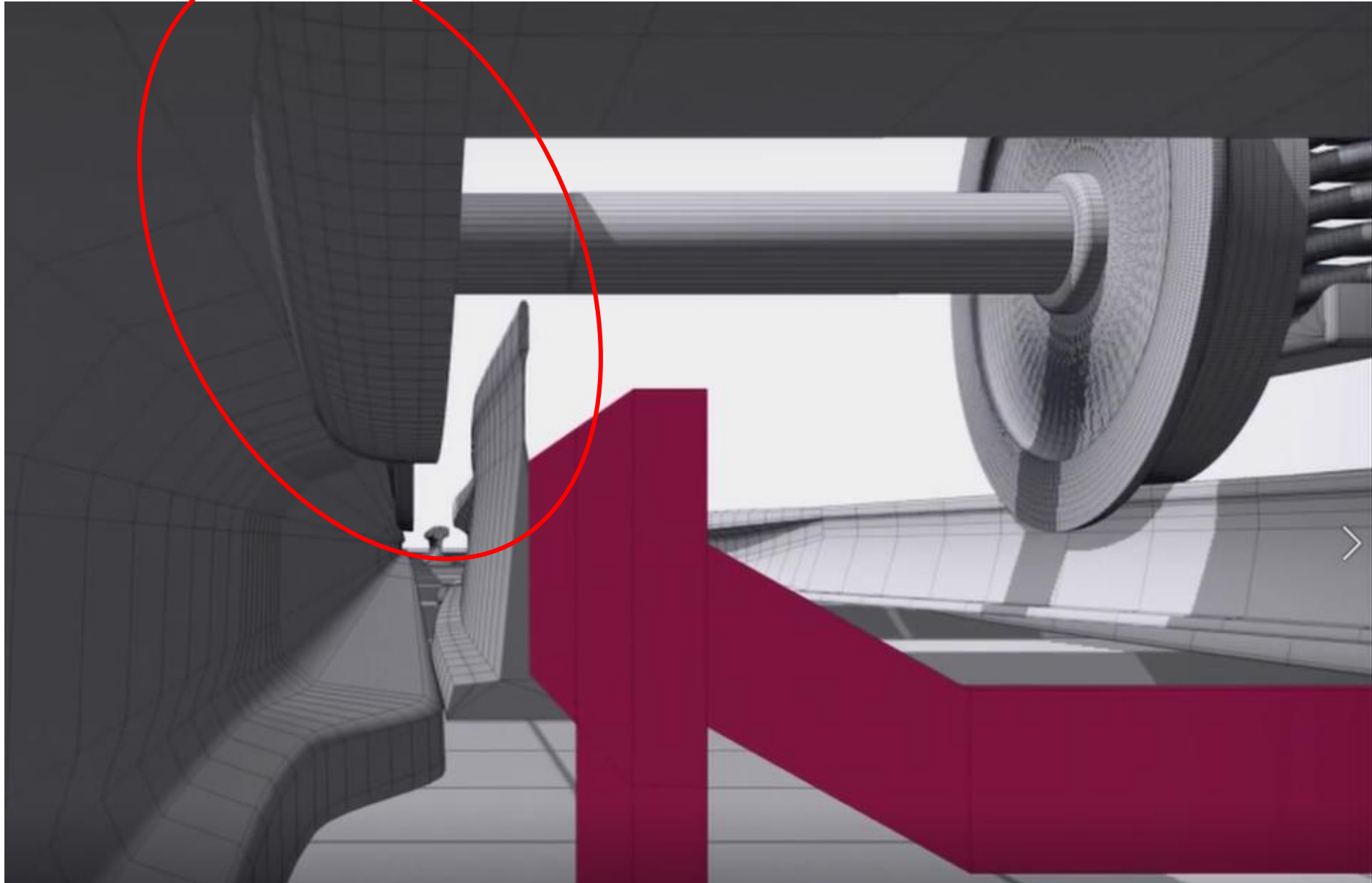
Points and crossings



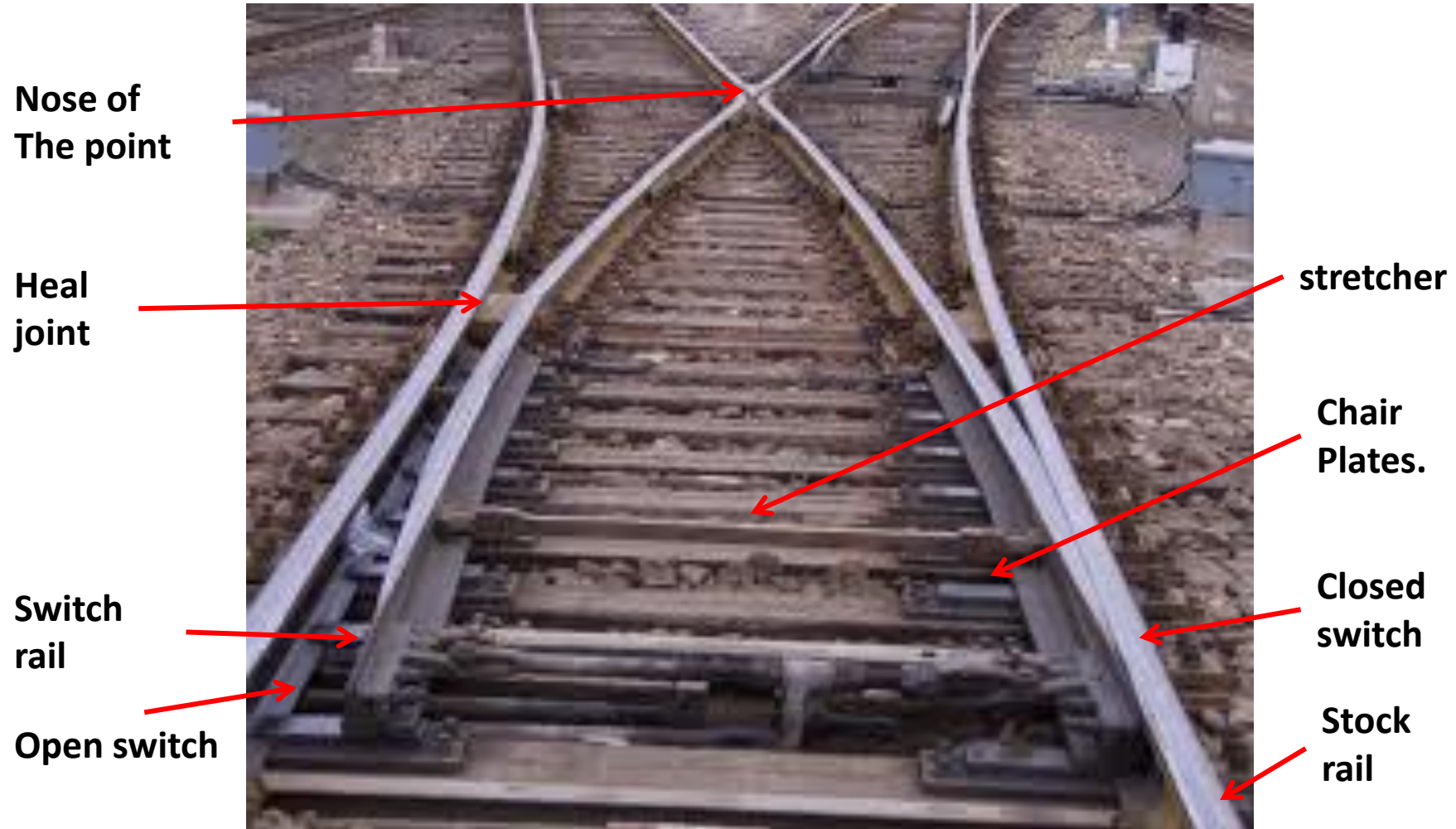
Points and crossings



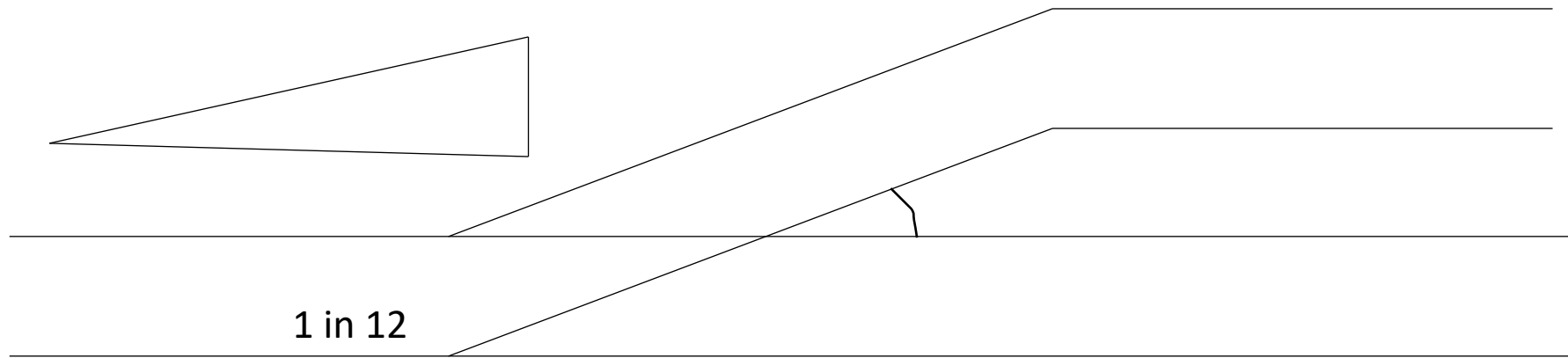
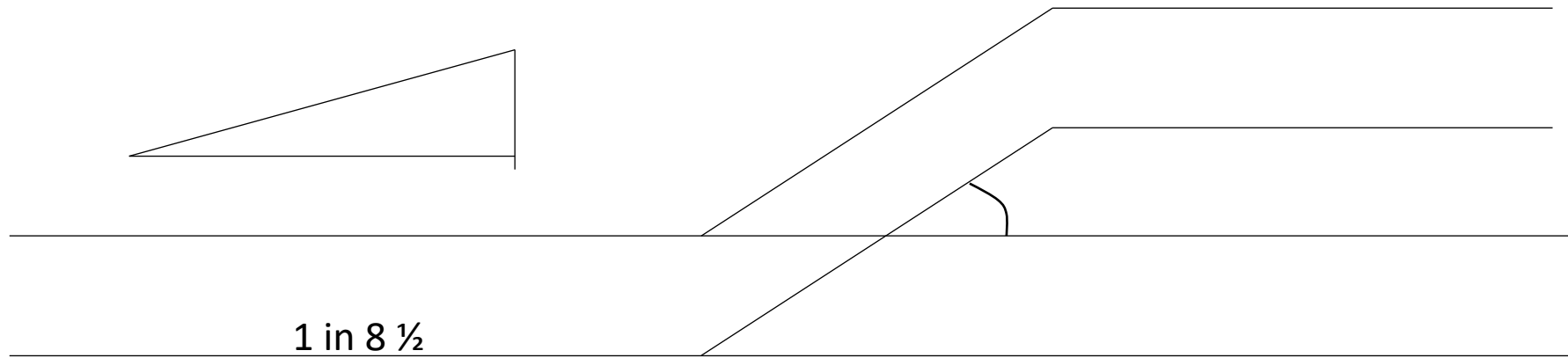
Points and crossings



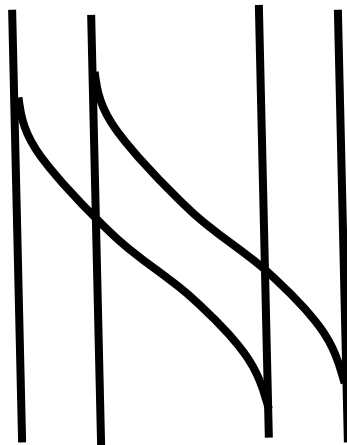
Parts



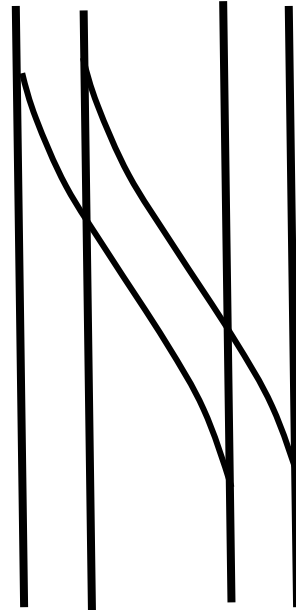
Turnouts



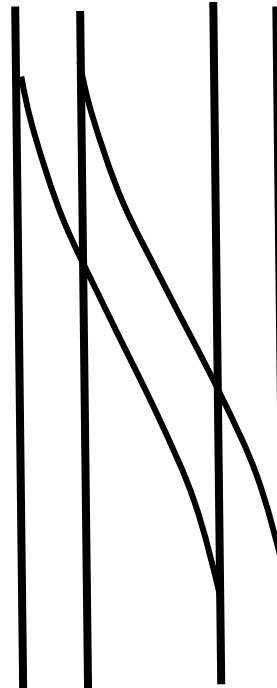
Turnouts



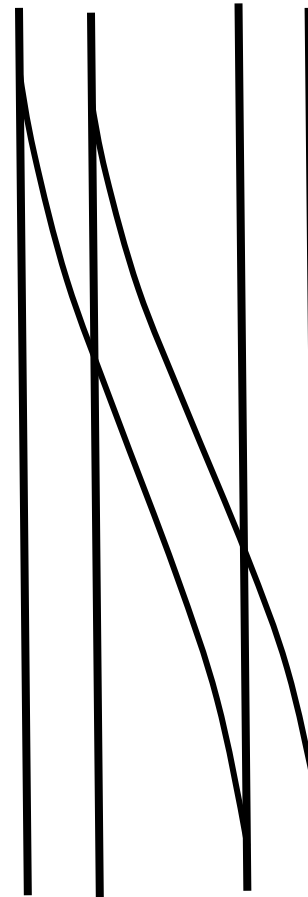
1 : 8 ½



1 : 12



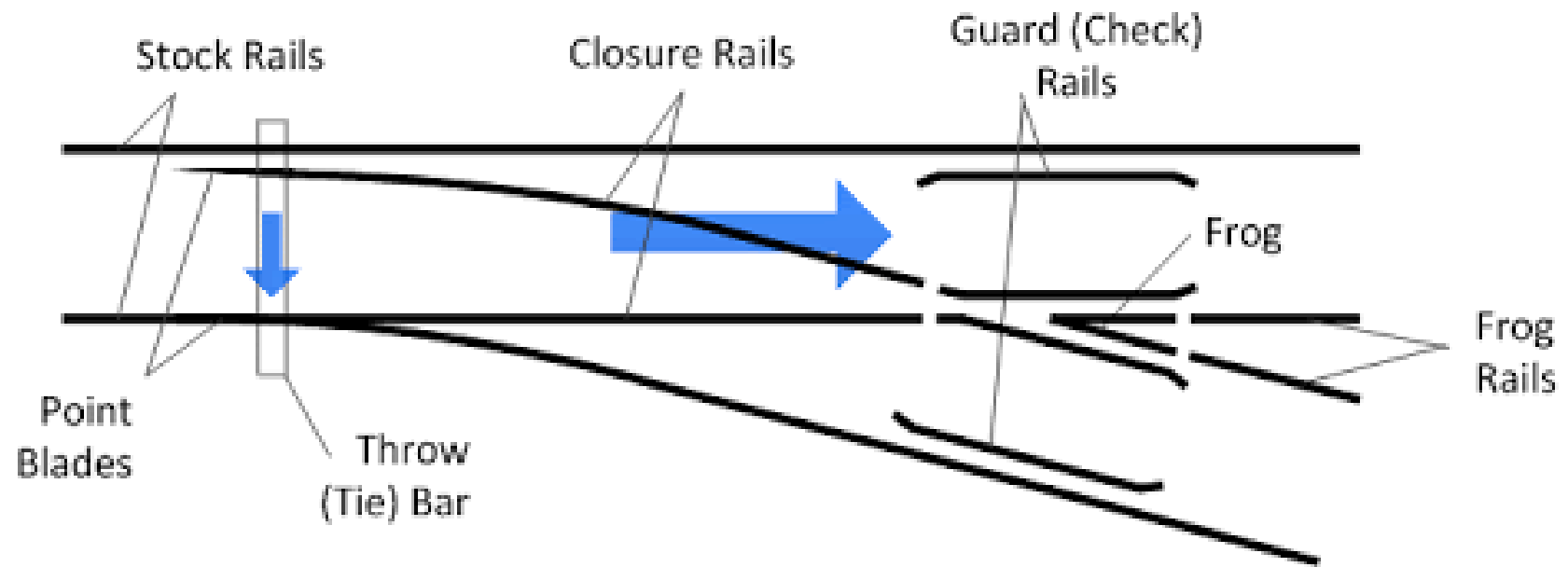
1 : 16



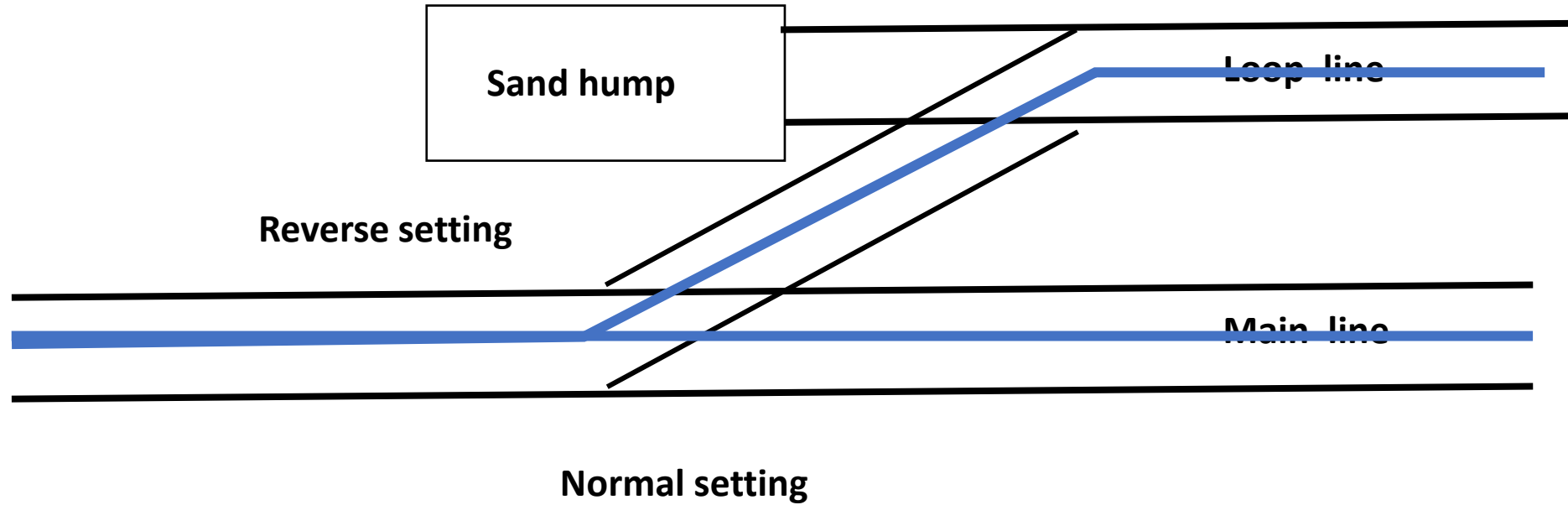
1 : 20



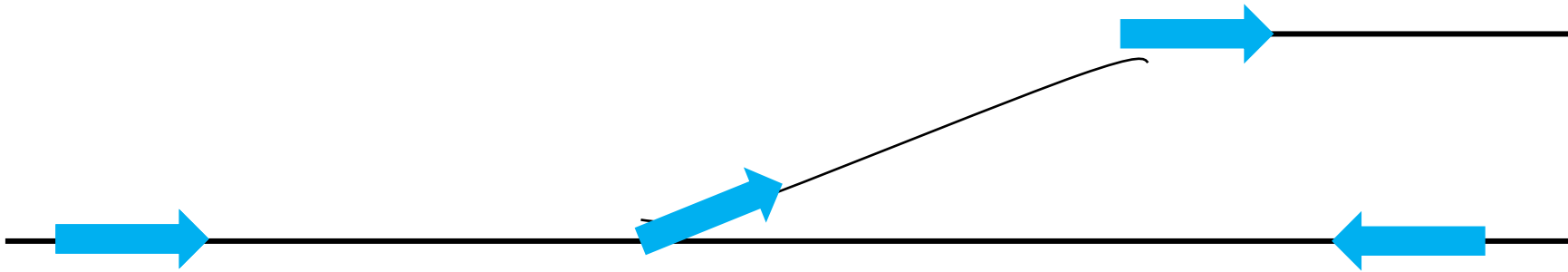
Setting of points



Setting of points



FACING AND TRAILING POINTS



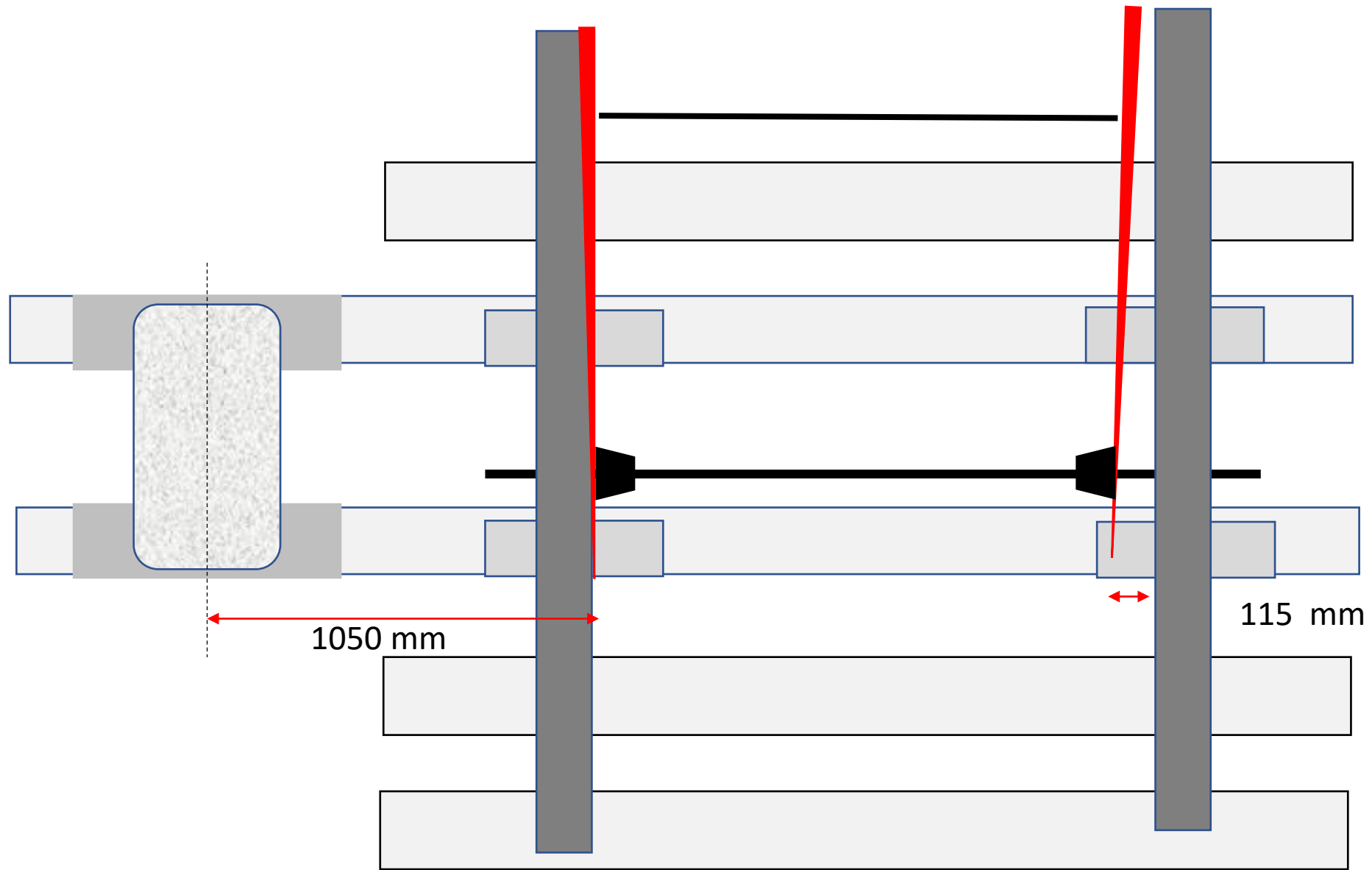
Point operation



Point operation



points



TRAP POINT/DERAILING SWITCH



TRAP POINT/DERAILING SWITCH

Symmetrical split



TRAP POINT/DERAILING SWITCH



Scissors crossing

TRAP POINT/DERAILING SWITCH

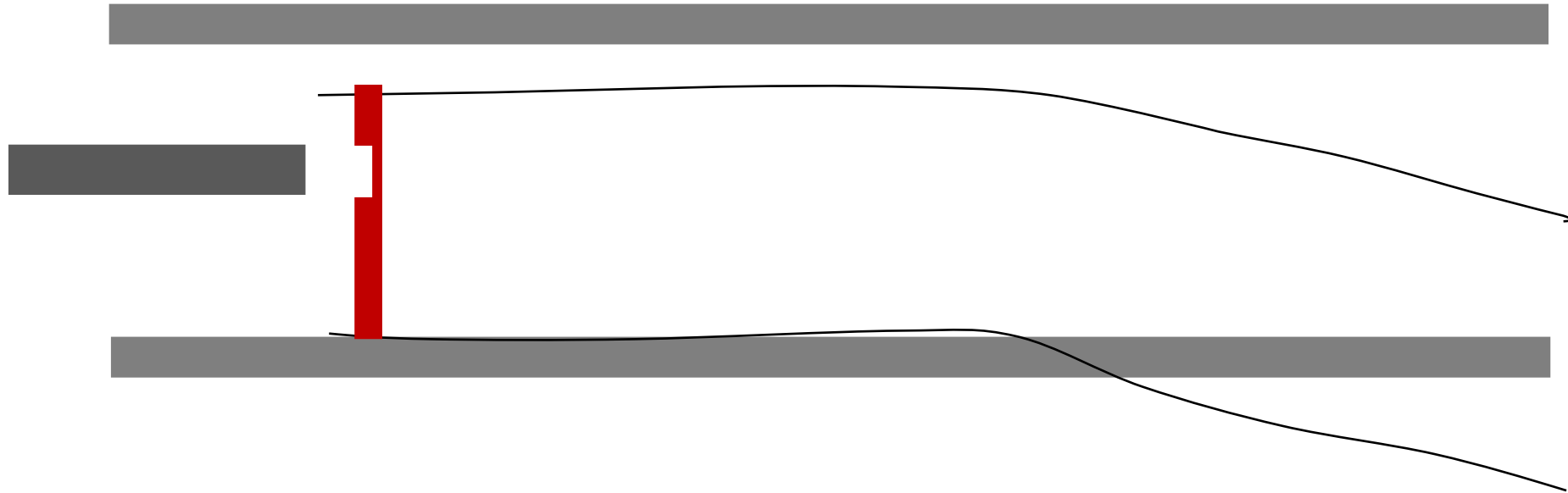


Diamond crossovers

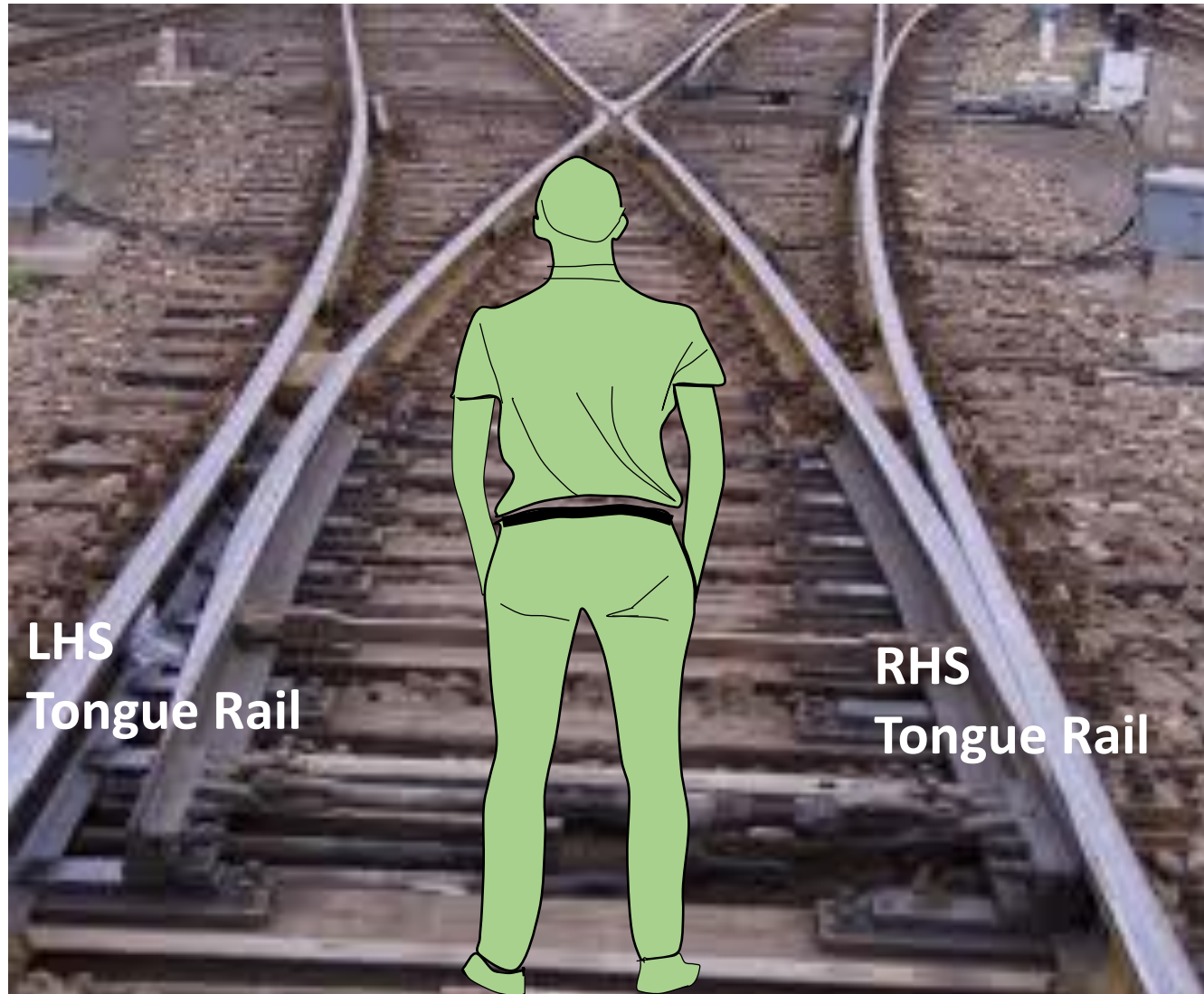
LOCKING OF POINTS



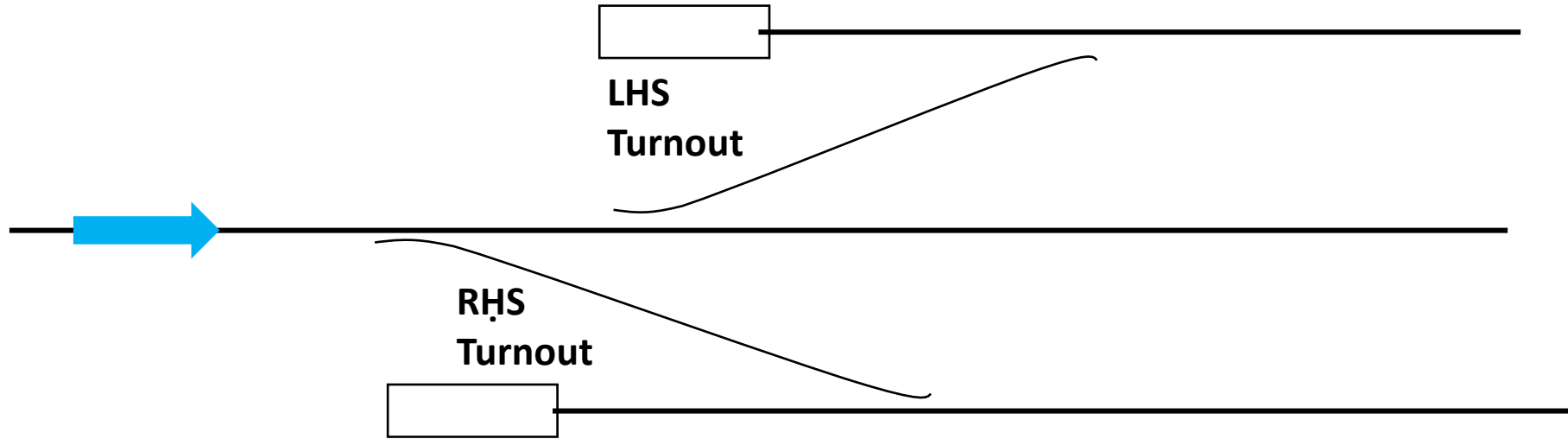
LOCKING OF POINTS



IDENTIFYING TONGUE RAILS



IDENTIFYING turnouts



Points and crossings

Stock



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Stock rail joint



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Thick web switches



Thick web switches

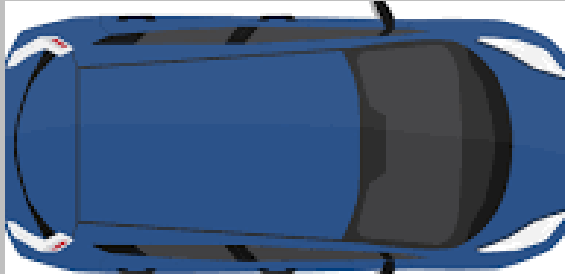
Normal switches



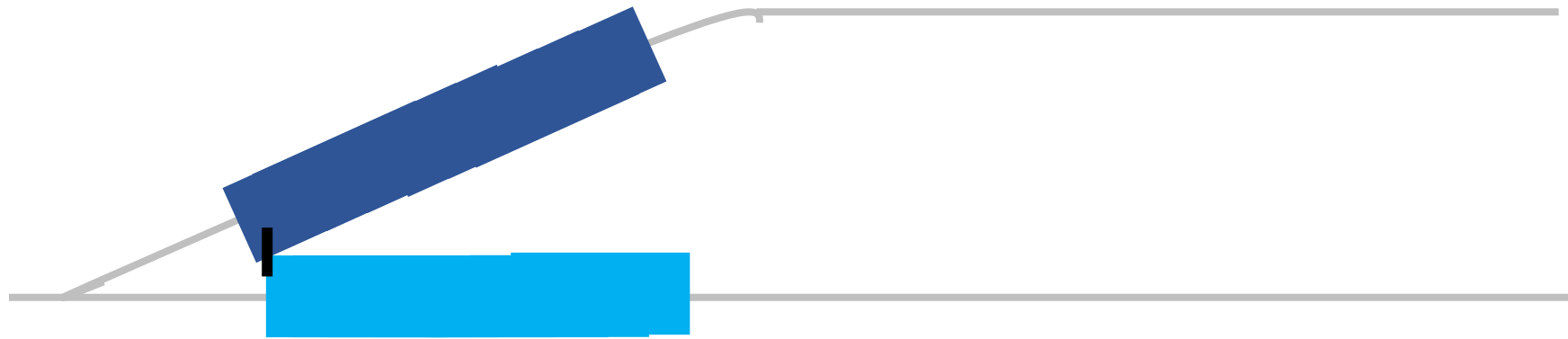
Thick Web Switches



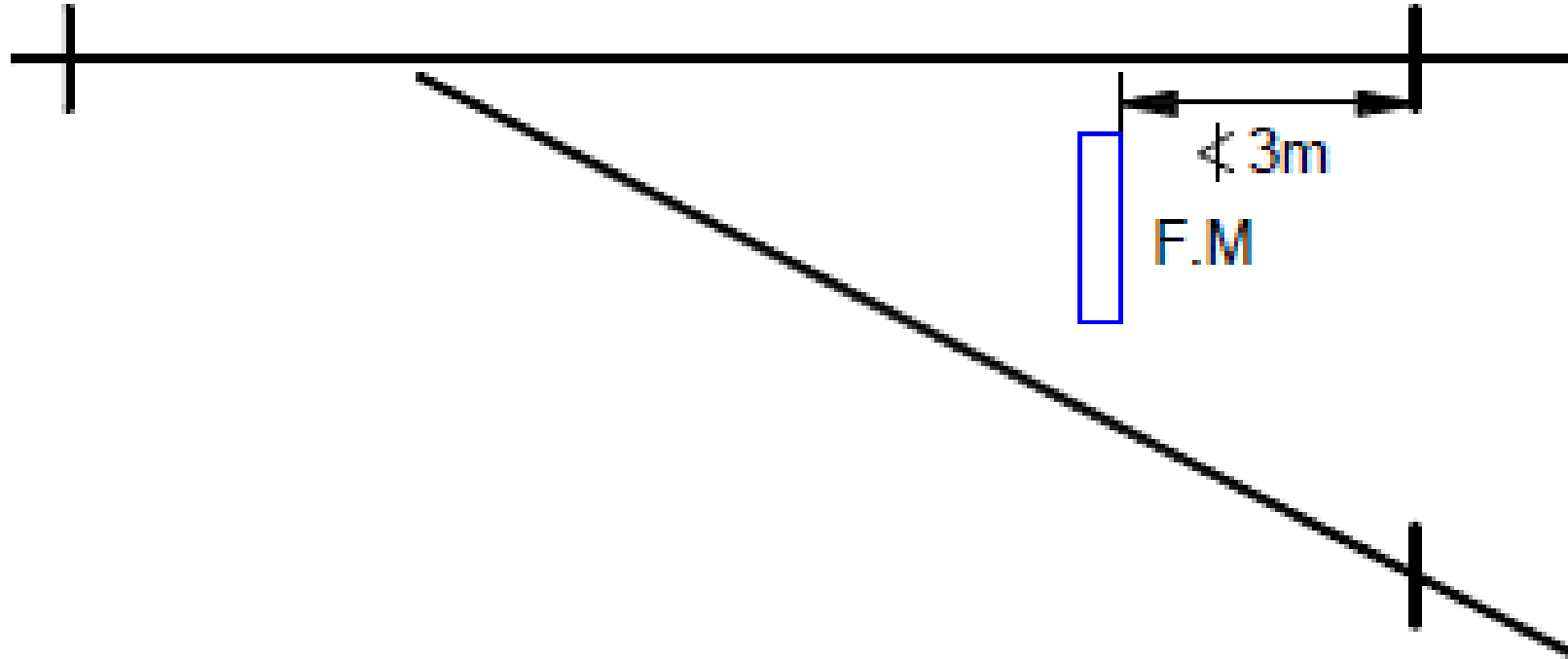
Fouling mark



FOULING MARK



Fouling mark



FOULING MARK



Fouling mark



Review questions

1. There is a protruded portion on the wheel of a train, called as _____ of the wheel
2. The moving part in the point are called as _____ or _____.
3. At any given time, one tongue rail _____ with the stock rail and the other tongue rail will _____
4. To enable the tongue rails to move freely, the tongue rails are made to rest on the _____
5. The points and crossings are classified in to types of _____
6. Indian Railway uses _____
7. Any point has two settings. The _____ and _____ setting

Review questions

8. Normal setting the train travels on _____ and on reverse setting the train travels on _____.
9. The sandhumps are provided _____, as signal overlaps.
10. Points are identified as _____ or _____.
11. If a train travels over the point and if the train can be diverted from one line to another line, it is called as _____.
12. And if a train cannot be diverted, when it travels through the point, it is called as _____.
13. The open switch shall be maintaining a gap of _____ from the stock rail.
14. Generally the point machine operates with _____ V DC supply.
15. While installing of points and crossings, it needs to be ensured adequate size of _____ are provided.

Review questions

16. It is to notice here that, the trap point or a derailing switch, shall be provided with only _____ rail.
17. Especially the _____ should be locked before allowing the signalled movement over the point, as per the Signal Engineering Manual
18. The detection ensures whether the points are ____ and _____
19. To identify the tongue rails, it is necessary to stand in the _____ direction at the point.
20. If a train can be diverted towards left hand side it is called as _____
21. The joint where a point and crossings are connected with stock rails are called as _____
22. The fouling mark is the place where _____ infringe

Review questions

1. There is a protruded portion on the wheel of a train, called as _____ of the wheel
2. The moving part in the point are called as “Switch rails” or “Tongue rails”.
3. At any given time, one tongue rail is closely housing with the stock rail and the other tongue rail will maintain a gap
4. To enable the tongue rails to move freely, the tongue rails are made to rest on the chair plate
5. The points and crossings are classified in to types of “turnouts”
6. Indian Railway uses $1 : 8 \frac{1}{2}$, $1 : 12$, $1 : 16$, and $1 : 20$.
7. Any point has two settings. The Normal and Reverse setting

Review questions

8. Normal setting the train travels on **mainline** and on reverse setting the train travels on **loopleftine**.
9. The sandhumps are provided **on looplines only**, as signal overlaps.
10. Points are identified as "**Facing points**" or "**Trailing point**".
11. If a train travels over the point and if the train can be diverted from one line to another line, it is called as "**Facing point**".
12. And if a train cannot be diverted, when it travels through the point, it is called as "**Trailing point**".
13. The open switch shall be maintaining a gap of **115mm ±3mm** from the stock rail.
14. Generally the point machine operates with **110 V** DC supply.
15. While installing of points and crossings, it needs to be ensured adequate size of **lengthy sleepers** are provided.

Review questions

16. It is to notice here that, the trap point or a derailing switch, shall be provided with only **one tongue rail**.
17. Especially the **facing point** should be locked before allowing the signalled movement over the point, as per the Signal Engineering Manual
18. The detection ensures whether the points are **set** and **locked**
19. To identify the tongue rails, it is necessary to stand in the **facing** direction at the point.
20. If a train can be diverted towards left hand side it is called as **LHS turnout**
21. The joint where a point and crossings are connected with stock rails are called as **“Stock Rail Joint” SRJ**.
22. The fouling mark is the place where **standard dimensions** infringe

thanks