SHEET METAL | AIR | RAIL | TRANSPORTATION

GO-987 Recert Study Guide

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The purpose of this guide is to help you prepare for your upcoming Conductor Recertification class. This guide does not cover all rules. The following pages are the rules that seem to give conductors the most trouble during test time.

Part of this recert program is a mandatory 8-hour study period that is to be done prior to the class. This study period is to be done on your CN issued EOM Device and confirmation of this is done electronically. You must complete the module(s) as instructed.

It is vital that you know how to properly use and navigate your RSED (Railroad Supplied Electronic Device). If you need assistance, contact the local OJTC.

The following subjects are open book (using your EOM): HazMat (Switching & Train Placement), Physical Characteristics (Timetable), and Foreign Rules (GCOR).

The following subjects are NOT open book: USOR (Operating Rules & Signals), ABTH (Air Brake & Train Handling, and LIFE (Transportation Safety). These three subjects take up a large portion of the tests, so it is imperative that you study and prepare ahead of time.

Find an error or have a suggestion? Please alert the GCA using the CONTACT tab on the app or your Local Chairperson. We hope you find this guide to be helpful.

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~USOR~

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RADIO RULES

203. REQUIRED IDENTIFICATION.

Employees transmitting or answering a radio communication must begin with the required identification. This must include the following in this order:

- Base Radios: "CN" and name, location, or other unique designation,
- Trains and Engines: Initials and number of the engine, or
- On-Track Equipment: "CN" and name of the operator or precise identification of the on-track equipment.

Locomotive Identification – Locomotives must be identified by initials and number. Some locomotives in CN paint are owned by subsidiary companies, i.e., "IC" "WC" "DMIR" and will have those reporting marks on the cab sides below the engine number, and those initials are the proper identification of the locomotive. Those in CN paint without initials shown are identified as "CN" locomotives. If uncertain, refer to the inspection card inside the locomotive cab.

205. ENDING TRANSMISSIONS.

OVER: Except when transmissions relate to switching operations, when the communication is complete and a response ***IS*** expected, the transmitting employee must say "Over."

OUT: Except when transmissions relate to switching operations, when the communication is complete and ***NO*** response is expected, the transmitting employee must say, "(the required identification)" followed by "Out."

206. COMMUNICATION NOT UNDERSTOOD OR INCOMPLETE.

An employee who does not understand a radio communication or who receives a communication that is incomplete must not act upon the communication and must treat it as if it was not sent.

> EXCEPTION: An employee who receives information that may affect the safety of employees or the public or cause damage to property must take the safe course. When necessary, stop movement until the communication is understood.

208. EMERGENCY CALLS.

Emergency calls begin with the words, "Emergency, Emergency, Emergency," and are used for emergency stops, severe slack action while stopping, initial reports of derailments, collisions, storms, washouts, fires, track obstructions, property damage, or injury to employees or the public.

All employees must give absolute priority to an emergency communication.

Unless they are answering or aiding the emergency call, employees must not send any communication until they are certain no interference will result.

210. TRANSMITTING SIGNAL INFORMATION.

Employees must not use the radio to give information to a train or engine crew about the name, position, aspect, or indication displayed by a fixed signal, unless the information is given between members of the same crew, or the information is needed to warn of an emergency. Except as provided for in Rules 857 (STOP INDICATION AT CONTROL POINTS) and 858 (STOP INDICATIONS IN ABS TERRITORY), instructions may not be issued over the radio that would have the effect of overriding the indication of a fixed signal.

211. DIRECTING SHOVING MOVEMENTS VIA RADIO.

When radio communication is used to direct shoving movements, do not move until instructions, including distance and direction, are received. Each time a new instruction is given, the engineer will acknowledge the distance or information, except when the distance remaining to move is 4 cars or less, acknowledgement is not required. When the movement will stop within 4 car lengths, the employee directing the movement is not required to use the engine number as long as there is no possibility of confusion with another movement. EXAMPLE: "CN 2641 3 cars---2 cars---1 car---half car---10 feet; that will do."

Stop within one half the distance specified unless additional instructions are received before reaching that point. If stop has been made before reaching the end of the shoving movement, engineer must verify point protection is still being provided before resuming movement.

SIGNALS

403. ACKNOWLEDGE STOP SIGNAL.

When any signal except a fixed signal is given to stop a train, it must be acknowledged as prescribed by whistle signal 410(4) or radio communication.

405. IMPERFECTLY DISPLAYED SIGNALS.

If a signal or sign is imperfectly displayed or is absent from the place usually shown, it must be regarded as the most restrictive indication it can give.

EXCEPTION: When one or more lower lights of a color light signal aspect is dark, treat that dark aspect as if it was red. Report imperfectly displayed signals to the RTC as soon as possible.

406. FUSEE.

If a train approaches an unattended fusee burning on or near its track, the train must immediately be brought to a stop consistent with good train handling.

Stop before passing the fusee when operating in accordance with Rule 518 (Movement at Restricted Speed) or Rule 520 (Movement on Non-Main Track).

After stopping, the train must proceed at restricted speed until the head end is 1 mile beyond the fusee.

If an unattended burning fusee is beyond the first rail of an adjacent track, the fusee does not apply to the track on which the train is moving.

Fusees must not be used wastefully and in any case not placed where they may cause fires.

408. RINGING ENGINE BELL.

Engine bell must be rung when:

- beginning movement, except when switching requires frequent stopping and starting after initial movement;
- approaching and passing Roadway Workers;
- approaching public crossings at grade including those in Locomotive Whistle Quiet Zones, and begin no later than the whistle post and continue until the crossing is occupied;
- passing standing equipment on an adjacent track when locomotive is leading the movement;
- passing station platforms when passengers are present; or
- moving in mechanical department areas.

If an engine bell on the lead locomotive fails en route and no other unit can be used as the lead unit, the train may continue until the earlier of:

- next calendar day inspection, or
- nearest forward location where the engine bell can be repaired or replaced.

410. SOUNDING WHISTLE.

The required whistle signals are illustrated by "O" for short sounds and "—" for longer sounds:

WHISTLE SOUND	INDICATION
(1) Succession of short sounds	Use when an emergency exists, or persons, vehicles, or livestock are on or near the track.
(2) —	Air brakes are applied, pressure equalized.
(3) — —	Release brakes and proceed.
(4) O	Acknowledgement of any signal not otherwise provided for.
(5) O O	When stopped, back up.
(6) — O	Approaching Roadway Workers or roadway equipment on or near the track, regardless of any whistle prohibition. After the initial warning, sound whistle signal 410(4) intermittently until the head end of the train has passed the Roadway Workers or equipment.
(7) — — O —	Approaching public crossings with engines leading, sound signal as follows: ● At speeds in excess of 60 MPH, start signal at the whistle post, but not more than ¼ mile before the crossing. ● At speeds of 60 MPH or less, start signal at least 15 seconds but no more than 20 seconds before entering the crossing. ● If movement starts less than ¼ mile from the crossing, signal may be sounded less than 15 seconds before entering the crossing when it is seen crossing gates are in the fully lowered position or no traffic is approaching, or traffic is stopped at the crossing. ● Prolong or repeat signal 410(7) until the crossing(s) is completely covered.

EXCEPTION: Whistle signals 410(3) and 410(5) do not apply during switching movements.

Other forms of communication may be used in place of whistle signals, except signals 410(1), 410(6), and 410(7); and for passenger trains only signal 410(3).

For all required whistle signals (1) - (7), engineer must fully pull whistle handle or fully depress whistle button to ensure maximum warning is provided. Improper use of the whistle is prohibited.

If the whistle fails to operate and no other unit can be used as the lead unit, continue movement with the bell ringing continuously. Stop the train before each public crossing, so a crew member on the ground can provide warning until the crossing is occupied, unless:

- crossing gates are in the fully lowered position, or
- no traffic is approaching or stopped at the crossing.

412. HEADLIGHTS.

Turn the headlight on bright to the front of every moving train. It may be turned off when the train is not moving. Engines working in yards will have headlight displayed at all times, however, it may be turned off on the end coupled to cars.

Except when approaching (whistle post or location whistle post is normally located) and passing over a public crossing at grade, the headlight may be dimmed:

- approaching or being approached by an opposing train or engine,
- approaching stations where passengers are received or discharged,
- at other times to permit passing of hand signals or when the safety of employees requires,
- facing oncoming vehicles at night which may be affected on adjacent roadways, or
- when inclement weather conditions such as blowing snow or fog cause the headlight to be reflected into the cab, impairing the vision of the crew.

Display ditch lights at the front of a train when the headlight of the lead locomotive is required to be on bright. Ditch lights are not required when shoving equipment, including snowplows, ahead of the locomotive.

Locomotives must not be operated as the lead unit out of a train's initial terminal unless both ditch lights are operating. However, if no units are equipped with ditch lights, the train may proceed not exceeding 20 MPH while head-end passes over public grade crossings.

413. HEADLIGHT/DITCHLIGHT FAILURE.

HEADLIGHT

This rule applies to lead locomotives equipped with dual-lamp headlights. If one lamp of the dual-lamp headlight is not working, the locomotive will not leave the location when an Initial Terminal Inspection is required for the entire train. If one lamp fails en route, ditch lights will be illuminated continuously until the headlight lamp is repaired or the locomotive is moved to trailing position. If the other headlight lamp or either ditch light fails en route, the locomotive may continue to operate to the earlier of the next calendar day inspection or the nearest forward location where necessary repairs can be made. The Diesel Doctor and RTC must be notified of the failure.

DITCH LIGHTS

If one ditch light fails en route, the train may proceed, but repairs must be made by the next Daily Inspection. If two ditch lights fail en route, the train may proceed not exceeding 20 MPH while head-end passes over public grade crossings but must not travel beyond the first point where repairs may be made or until the next Daily Inspection, whichever happens first. A non-complying locomotive tag must be filled out and placed on the isolation switch stating, "BO Ditch Lights" and show "20 MPH maximum speed over public grade crossings" as the speed restriction.

415. MARKERS.

A marker must be displayed on the trailing end of the rear car to indicate the rear of the train, and that the train is complete. When an engine is operating without cars, or is at the rear of the train, use one of the following as a marker:

- trailing headlight is illuminated on dim, or
- marker lights equipped on the locomotive.

Markers are not required for movements on Non-Main Track or within Yard Limits, unless a Two-Way Telemetry Device is required by Air Brake & Train Handling Rule 511.

Display a reflector, red flag, or EOT device at the rear of the train as the marker when:

- a highly visible marker is not required,
- a defective car must be placed at the rear for movement to a repair point, or
- the rear portion of the train is disabled and cannot be moved, and a highly visible marker cannot be displayed on the rear of the portion to be moved.

Display a highly visible marker at the rear of every train, from 1 hour before sunset to 1 hour after sunrise, and when weather conditions restrict visibility to less than 1/2 mile.

When a highly visible marker is required, a qualified employee must inspect it at the initial terminal and at each crew change point. To determine if the marker is functioning properly, the employee will inspect it by observation or by telemetry display in the cab of the engine.

If the highly visible marker becomes inoperative en route, move the train to the next forward location where the highly visible marker can be repaired or replaced. Except for light engine consists, when the engineer is the only crew member on a train, it must be equipped with a functioning and armed two-way telemetry device out of its initial terminal.

416. BLUE SIGNAL PROTECTION OF WORKERS.

This rule outlines the requirements for protecting railroad workers who are inspecting, testing, repairing, and servicing rolling equipment. In particular, because these tasks require the workers to work on, under, or between rolling equipment, workers are exposed to potential injury from moving equipment.

As used in this rule, the following definitions apply:

Workers - Railroad employees assigned to inspect, test, repair, or service railroad rolling equipment or components, including brake systems. Train and yard crews and employees assigned to a specific train or yard crew as a Utility employee are excluded, except when they perform the above work on rolling equipment not part of the train or yard movement they are handling or will handle.

- "Servicing" does not include supplying cabooses, engines, or passenger cars with items such as ice, drinking water, tools, sanitary supplies, or stationery.
- "Testing" does not include an employee making visual observations while on or alongside a caboose, engine, or passenger car. Also, testing does not include repositioning the activation switch or covering the photo-electric cell of the marker when the rear of the train is on the main track. The employee inspecting the marker must contact the employee controlling the engine to confirm the train will remain secure against movement until the inspection is complete.

Group of Workers - Two or more workers of the same or different crafts who work as a unit under a common authority and communicate with each other while working.

Rolling Equipment - Engines, cars, and one or more engines coupled to one or more cars.

Blue Signal - During the day, a clearly distinguishable blue flag or light, and at night, a blue light. The blue light may be steady or flashing. The blue signal does not need to be lighted when it is attached to the operating controls of an engine and the inside of the engine cab area is lighted enough to make the blue signal clearly distinguishable.

Effective Locking Device - When used in relation to a manually operated switch or a derail, a lock that can be locked or unlocked only by the craft or group of workers applying the lock.

Car Shop Repair Area - One or more tracks within an area where rolling equipment testing, servicing, repairing, inspecting, or rebuilding is controlled exclusively by mechanical department personnel.

Engine Servicing Area - One or more tracks within an area where engine testing, servicing, repairing, inspecting, or rebuilding is controlled exclusively by mechanical department personnel.

Switch Providing Direct Access - A switch that if used by rolling equipment could permit the rolling equipment to couple to the equipment being protected.

A. What a Blue Signal Signifies.

A blue signal signifies that workers are on, under, or between rolling equipment and the following applies:

1. Rolling equipment must not be coupled to or moved, except as provided in Movement in Engine Servicing Area and Movement in Car Shop Repair Area.
2. Rolling equipment must not pass a blue signal on a track protected by the signal.
3. Other rolling equipment must not be placed on the same track so as to block or reduce the view of the blue signal. However, rolling equipment may be placed on the same track when it is placed on designated engine servicing area tracks or car shop repair area racks, or when a derail divides a track into separate working areas.
4. Rolling equipment must not enter a track when a blue signal is displayed at the entrance to the track.
5. Controls or devices on rolling equipment that could affect equipment movement (i.e., MU connections, handbrakes, angle cocks) must not be changed or operated unless directed by individuals who placed the blue signals or by the employee in charge of workers.

Blue signals or remote-control blue signals must be displayed for each craft or group of workers who will work on, under, or between rolling equipment.

Blue signals may be removed only by the craft or group who placed them. Remote control display may be discontinued when directed by the craft or group that requested the protection. When blue signal protection has been removed from one entrance of a double-ended track or from either end of rolling equipment on a main track, that track is no longer under blue signal protection.

B. How to Provide Protection.

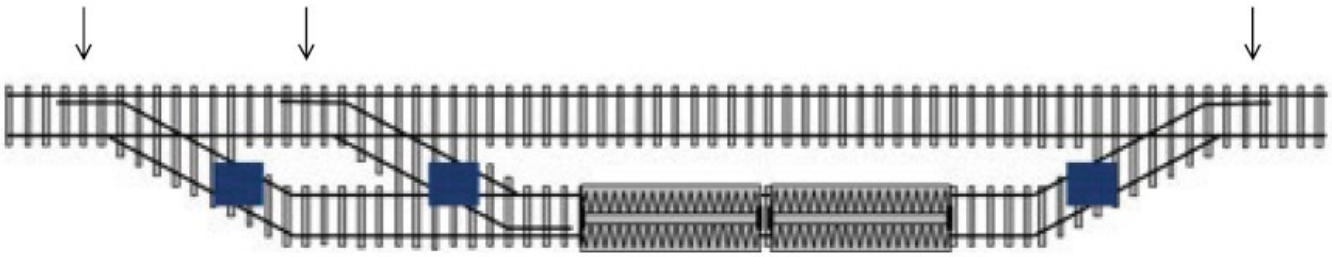
When workers are on, under, or between rolling equipment and exposed to potential injury, protection must be provided as follows:

On a Main Track a blue signal must be displayed at each end of the rolling equipment.

On Non-Main Track one of these three methods of protection or a combination of these methods must be provided:

1. Each manually operated switch that provides direct access must be lined against movement onto the track and secured by an effective locking device. A blue signal must be placed at or near each such switch. In addition, any facing point crossover switch must be lined against movement and secured by an effective locking device.

Diagram A.



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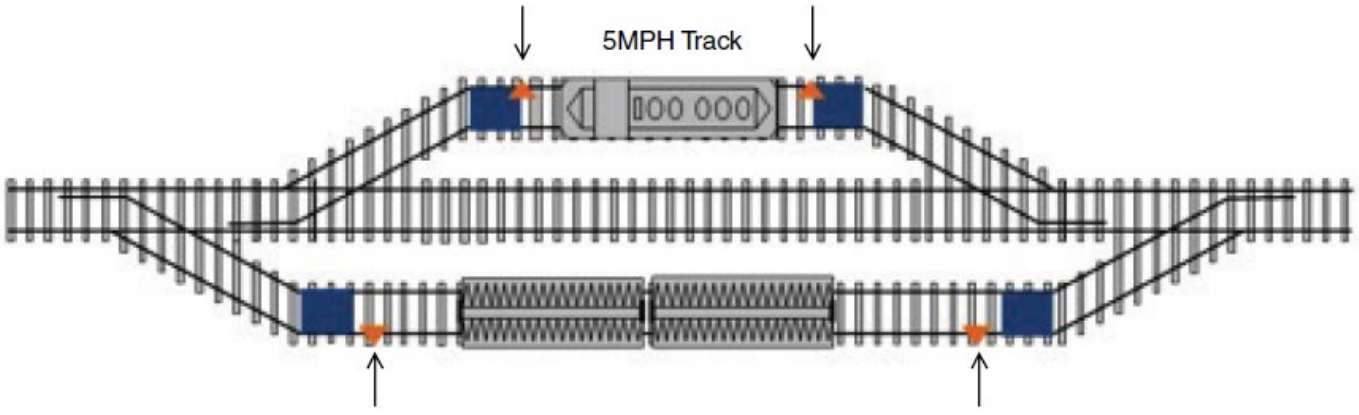
2. A derail capable of restricting access to the track where work will occur must be locked in derailing position with an effective locking device and:
    a. positioned at least 150 feet from the rolling equipment to be protected, or
    b. positioned at least 50 feet from the end of rolling equipment on a designated engine servicing track or car shop repair track where speed is limited to not more than 5 MPH.

    A blue signal must be placed at or in advance of each derail.

Diagram B.



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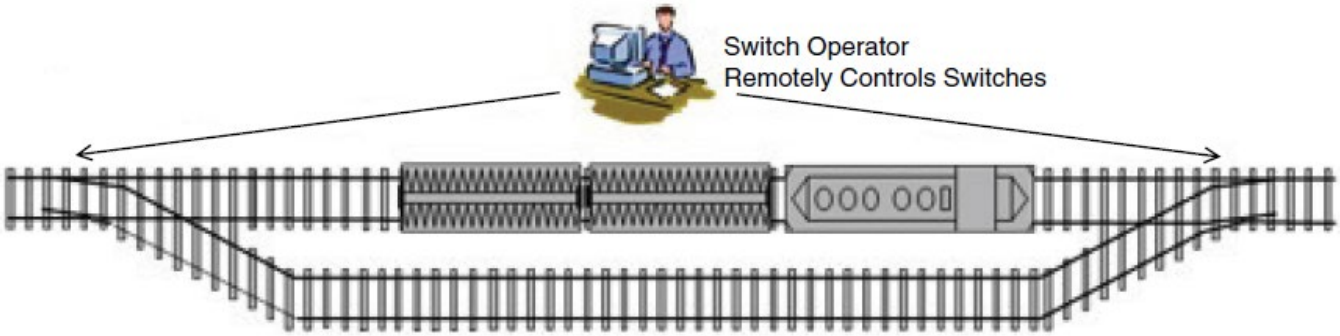
3. Where remote control switches provide direct access, the employee in charge of the workers must tell the switch operator what work will be done. The switch operator must then be governed by the following:
    a. Inform the employee in charge of the workers that the switches have been lined against movement onto the track and devices controlling the switches have been secured.
    b. Not remove the locking devices unless the employee in charge of the workers says it is safe to do so.
    c. Maintain for 15 days a written record of each notification that includes:
        - Name and craft of the employee in charge of the workers requesting protection.
        - Identification of track involved.
        - Date and time the employee in charge of workers is notified that protection was provided.
        - Date, time, name, and craft of the employee in charge of workers who authorized removal of the protection.

Diagram C.



C. Blue Signal Readily Visible to Engineer

In addition to providing protection as required in "On a Main Track" and "On Non-Main Track," when workers are on, under, or between an engine or rolling equipment coupled to an engine:

1. Blue signal must be attached to the controlling engine, and visible to the engineer or employee controlling the engine.
2. Engines equipped for remote control must be placed in Manual Mode.
3. Engine must not be moved.

D. Protection for Workers Inspecting Markers

Blue signal protection must be provided for workers when they are:

1. replacing, repositioning, or repairing a marker, and the rear of the train is on any track, or
2. inspecting a marker by repositioning the activation switch or covering the photo-electric cell, and the rear of the train is on other than a main track.

E. Protection for Emergency Repair Work

If a blue signal is not available for employees performing emergency repairs on, under, or between an engine or rolling equipment coupled to an engine, the employee controlling the engine must be notified and appropriate measures taken to provide protection for the employees.

F. Movement in Engine Servicing Area

An engine must not enter a designated engine servicing area until the blue signal protection is removed from the entrance. The engine must stop short of coupling to another engine.

An engine must not leave a designated engine servicing area unless the blue signal is removed from the engine and the track in the direction of movement.

Blue signal protection removed to let engines enter or leave the engine servicing area must be restored immediately after the engine enters or clears the area.

An engine protected by blue signals may be moved on a designated engine servicing area track based on the following:

1. An authorized employee operates the engine under the direction of the employee in charge of workers.
2. The blue signal has been removed from the controlling engine to be repositioned.
3. Workers have been warned of the movement.

G. Movement in Car Shop Repair Area

When rolling equipment on car shop repair tracks is protected by blue signals, a car mover may reposition the equipment if:

a. workers have been warned of the movement, or
b. an authorized employee operates the car mover under the direction of the employee in charge of workers.

417. UTILITY EMPLOYEES.

A Utility Employee is a railroad employee assigned as a temporary member of a train or yard crew and is qualified on these rules. Utility Employees may work without blue signal protection when they are assigned to a crew and are performing work with that crew.

A utility employee may start work as a member of only one train or yard crew at a time. No more than three utility employees may work with one train or yard crew at the same time.

A utility employee may become a member of a train or yard crew under the following conditions:

- the utility employee communicates directly with the engineer of the train or yard crew before starting work,
- the engineer identifies the utility employee to each member of the crew, and each crew member acknowledges the utility employee's presence, or
- the engineer authorizes the utility employee to work as a temporary member of the crew.

Before a utility employee may work on, under, or between rolling equipment, the following applies:

- All members of the crew must communicate with each other to understand the work to be done.
- The engineer must be in control of the assigned controlling locomotive. However, another member of the same crew may replace the engineer when the locomotive is stationary.

A utility employee is released from a train or yard crew when:

- the utility employee notifies the engineer that the work is completed,
- the engineer notifies each crew member that the utility employee is being released, or
- the engineer releases the utility employee from the train or yard crew after each crew member acknowledges this notice.

Utility employees may go on, under, or between rolling equipment without blue signal protection to perform the following duties:

- Set or release handbrakes.
- Couple or uncouple air hoses, electrical, and mechanical connections
- Prepare equipment for coupling.
- Perform air brake tests, including cutting air brakes in or out and positioning retaining valves.
- Inspect, test, install, remove, or replace rear end marker or end of train device.

MOVEMENT OF TRAINS, ENGINES AND ON-TRACK EQUIPMENT

501. SPEED.

Speeds indicated are maximum authorized speeds between locations named, but do not modify any rule or instruction that may require a lower speed. Maximum speed must be maintained to the extent possible, consistent with safety and efficiency. Conductors and engineers are responsible for knowing and not exceeding maximum speed for their train or territory. Unnecessary delays must be avoided.

Passenger speed is applicable to trains consisting entirely of passenger equipment. Where no passenger speed is shown, passenger trains will be governed by speeds prescribed for freight trains.

Crew members must notify the RTC promptly of any condition that will delay or prevent their train from making the usual speed. When a controlled signal displays a proceed indication, notify the control operator immediately if movement cannot occur promptly.

Speed restrictions apply to the entire train or movement unless the restriction is identified as Head End Restriction (HER). Some permanent speed restrictions will show the reason for the restriction; however, the speed restriction is still applicable between the mile post locations shown.

PEER TO PEER GUIDELINES FOR SPEED

Crew Members must clearly communicate to each other (as outlined in this rule, USOR 501) the maximum authorized speed for their train or territory and are responsible to not exceed the maximum authorized speed.

1. Crew Member: "Approaching (insert speed restriction) at (insert milepost location)."
2. Engineer: "Approaching (insert speed restriction) at (insert milepost location)."

If speed requirements are, or may be exceeded, crew members must remind one another of such requirements:

1. Crew Member 1: "Maximum Authorized speed is 50 MPH; our current speed is 55, we need to slow down."
2. Locomotive Engineer: "Understood, appropriate action is being taken."

502. SHOVING MOVEMENTS.

Before shoving equipment, unless the engineer is positioned to visually protect the point of movement such as lite locomotive consist with a slug on the leading end, a job briefing must be conducted between the engineer and the employee directing the shove which will include:

- Means of communication to be used (only required when using non-radio communication),
- Type of point protection to be provided, and
- Specified distance and direction.

At Prohibited Spotting Distance locations, employee providing point protection must ensure movement stops a minimum of 25 feet from derails in derailing position or end of track locations.

Be vigilant when operating in customer tracks looking out for debris or other items which may foul or be on the track.

When protecting the shove movement, employee must be prepared to stop the movement within half the range of vision short of Train, Engine, Railroad car, Roadway Workers or equipment fouling the track, stop signal, derail or switch lined improperly.

Point protection must be provided by one of the following methods:

1. Employee riding the leading end of the movement positioned to observe the track to be used.
2. Employee taking a stationary position on the ground in advance of the movement and not inside a vehicle, who can see the point of the movement and track to be used during the duration of the shove.
3. Employee monitoring a camera or other technology when:
    - Portion of track has no intervening switches/derails, and
    - Visibility is not restricted.

The employee directing the shoving movement must not be involved in any unrelated tasks for the duration of the shove and must give signals or instructions to control the movement.

These instructions do not apply to the following:

- cars that have been kicked, humped or dropped,
- push-pull operations when operated from the leading end of the movement,
- manned helper service or distributed power locomotives when operated from the leading end of the movement,
- snowplow operations,
- while performing roadway maintenance work under the direction of an EIC, or
- movements as prescribed by Rule 503.

Shoving Movements inside Intermodal Terminals

When available, employees should ask for assistance through the use of a company vehicle when shoving into a pad track with crossings for the purpose of compliance with USOR 504.

When providing point protection in this manner, employees must:

- Provide point protection as a passenger in a vehicle (this applies to both RCL and non RCL movements). The employee may be driven to a location when there is continuous sight of the track to be used. Once vehicle is stopped, and the employee has exited the vehicle, the equipment can be moved towards the location of the employee provided the movement can be observed for the entire duration move.

Once movement is stopped, the employee can then be driven to the next location where they will have continuous sight of the track to be used and repeat the step above.

No vehicle available, recommended procedures.

- Take up a position on the point of the movement, on the side opposite where the chassis and containers are placed, if possible,
- In addition to the requirements of USOR 520, when employees are riding equipment, they must also operate at a speed to stop within ½ the range of vision, short of objects such as truck chassis, containers or vehicles which are potentially left foul of the track.
- Manually protect crossings where vehicular traffic is evident per USOR 504.

When cars are shoved on a signaled main track, controlled siding, or any track where CTC is in effect, permission of the RTC or control operator is not required when the movement will remain within a block, and Restricted Speed applies. Point protection must be provided by methods 1 or 2 above.

Unless further restricted, movements not headed by a locomotive, cab control car, self-propelled car or snowplow are restricted to a maximum of 20 MPH.

PEER TO PEER GUIDELINES FOR SHOVING MOVEMENTS

Conduct a job briefing between the engineer and crew member directing the shove and agree how the shoving movement will be made. Communication must include means of communication to be used, type of point protection, specified distance, and direction.

> Crew Member states via radio: "CN 2641, conductor is on the point, you're lined for track CS31 and okay to shove 20 cars."
>
> Engineer states via radio: "CN 2641, conductor is on the point, lined for CS31, and we're okay to shove 20 cars."
>
> Crew Member states via radio: "that is correct."

503. SHOVING MOVEMENTS AUTHORIZED BY THE RTC.

The requirements of Rule 502 do not apply to shoving movements authorized by the RTC on main tracks, controlled sidings, or any track where CTC is in effect.

1. Obtain permission from the RTC. Permission must not be given:
    - until it has been verified there are no authorities or Planned Work limits in effect behind the shoving movement, unless conflicting movements have been protected, or
    - if the track to be used has been removed from service in the same or overlapping limits.
2. When authorized under these conditions:
    - movement does not extend beyond train's authority to the main track,
    - movement will not be made into or within yard limits, automatic interlocking limits, or drawbridges,
    - movement must not exceed 20 MPH,
    - movement must not enter or foul a highway-rail grade crossing or pedestrian crossing except as provided by Rule 504, and
    - movement does not exceed the train's length.

3. When a shoving movement is made into or within a control point or manual interlocking limits:
    - signal governing movement must display an indication more favorable than RESTRICTING. (If Restricting is displayed, point protection must be provided under Rule 502 Item 1 or 2),
    - each signal affecting the movement must be continuously observed by a member of the crew who can determine that the signal changes to its most restrictive indication after the movement has passed it, and
    - movement does not exceed the train's length.

504. SHOVING OVER CROSSINGS.

Do not shove or kick cars into or through a highway-rail crossing or pedestrian crossing until:

- crossing gates are fully lowered, or
- a qualified employee is positioned at the crossing, and is able to communicate with the train, or
- at crossings where only flashing lights or crossbucks provide warning, no traffic is approaching or stopped at the crossing, and the leading end of the movement does not exceed 15 MPH through the crossing. If traffic is approaching or stopped at the crossing, stop and proceed over the crossing only as directed by employee on the ground at the crossing.

<u>Flangeways at Crossings and Emergent Conditions</u>

When shoving equipment, employees MUST ALWAYS be particularly vigilant to ensure flangeways at crossings are not filled with snow or ice, or any material that can be firmly packed into the flangeway (e.g., dirt, mud, stone, or debris) caused by the passage of vehicular traffic or where freezing and thawing conditions exist. Regardless if such emergent conditions are considered passable, employees MUST detrain and walk ahead of their movement to determine if the locomotive(s) can move through the conditions without derailing until these conditions are passed. Crew members must use good judgment when determining if locomotive(s) should first be operated over flangeways at crossings. If in doubt whether the locomotive(s) could safely clear the track of these conditions, crew member(s) must avoid entering the area.

Special precautions may need to be taken under emergent conditions when visibility is poor (e.g., night or fog), which can make ice, snow, or other material difficult to see. This is especially important when employee(s) are riding equipment. If such conditions exist, movements may need to reduce their speed or stop if required, to better assess the condition.

Any employee discovering ice, snow or other material which may make a flangeway at crossings impassible, must immediately report the condition(s) to the appropriate Supervisor or Rail Traffic Controller (RTC), so corrective action can be taken and to advise other movements of these condition(s).

508. TRAIN LOCATION BEFORE LEAVING.

Employees who receive authority to occupy the track after the arrival of a train or to follow a train must not occupy the track until they determine the train has arrived or left the location by one of the following methods:

- direct communication with a crew member of the train, or
- receiving information about the train from the RTC or control operator.

When employees are granted authority behind a train, the train must be informed by the EIC, unless they are beyond radio range, then information must be relayed by the RTC. The train must not make a shoving movement without permission of the EIC.

517. EMERGENCY STOP OR SEVERE SLACK ACTION.

If an adjacent main track or controlled siding may be obstructed when a train or engine is stopped by an emergency application of the brakes or severe slack action occurs while stopping, immediately warn other trains by radio in this manner:

"Emergency, Emergency, Emergency, (Train) is in emergency moving (direction) on (track) at MP ___."

Following the emergency transmission, the RTC must be notified.

All train and engine movements on adjacent tracks must pass the stopped train at Restricted Speed. If information is received from the RTC or crew members of the train in emergency that adjacent tracks are not fouled, restricted speed will not apply.

If the brake pressure on the rear car has been restored as indicated by rear car gauge or EOT device and there is no visible damage, the train may proceed without providing inspection. If brake pipe pressure cannot be restored or if the train requires excessive power to start after being stopped, then inspect both sides of the train before proceeding. When emergency stop results in a drawbar or knuckle separation, train must not proceed until the drawbar/knuckle or any other broken car parts are removed from between the rails where they could cause damage to effected train or any subsequent passing trains or on-track equipment.

518. MOVEMENT AT RESTRICTED SPEED.

When a train or engine is required to move at restricted speed, it must proceed prepared to stop within one-half the range of vision short of:

- Train,
- Engine,
- Railroad car,
- Roadway Workers or on-track equipment fouling the track,
- Stop Signal, or
- Derail or switch lined improperly.

The crew must keep a lookout for broken rail and not exceed 20 MPH.
Comply with these requirements until the leading wheels reach a point where movement at restricted speed is no longer required.

520. MOVEMENT ON NON-MAIN TRACK.

Except when moving on a track where CTC is in effect, trains, engines and on-track equipment must move on Non-Main Track, at a speed that allows them to stop within one half the range of vision short of:

- Train,
- Engine,
- Railroad car,
- Roadway Workers or equipment fouling the track,
- Stop signal, or
- Derail or switch lined improperly.

On-Track equipment that is traveling will move as the way is known or seen to be clear. When establishing working limits, Roadway Workers must provide protection as prescribed by On-Track Safety Rules Section 5. Trains, engines, and on-track equipment within working limits established by means of inaccessible track may move only under the direction of the EIC.

523. INSPECTING PASSING TRAINS.

When duties and terrain permit, both sides of a passing train must be inspected.

- Engineer will inspect from the cab of the locomotive.
- Conductor must perform an inspection from the ground. If possible, stop the train at a location that allows the inspection from the opposite side of the track. Where no safe location is present on the other side of the track, the Conductor will stand on the ground by their standing train.

At locations where trains will meet, the train to arrive second must notify the first train when they pass the approach to the siding, to allow crew members to be in position for inspection. If adequate time is not provided for crew members to get safely into position prior to the arrival of any train, attempt to perform inspection of as much of the passing train as possible.

Other employees along the right of way must inspect passing trains.

Look especially for the following conditions:

- overheated journals,
- sticking brakes,
- sliding wheels,
- wheels not properly positioned on the rail,
- dragging equipment,
- insecure contents,
- signs of smoke or fire,
- headlight or marker improperly displayed, and
- any other dangerous condition.

Report the results of the inspection to a crew member of the passing train. If a defect is observed and communication cannot be established, immediately notify RTC.

526. BLOCKED PUBLIC CROSSINGS.

A public crossing must not be blocked longer than 10 minutes unless it cannot be avoided. If possible, do not allow head end of the train to stand closer than 200 feet from a road crossing when there is an adjacent track.

529. ACTIVATION FAILURE/FALSE ACTIVATION/CROSSBUCK DOWN.

Employees must observe all automatic crossing warning devices and report any that are malfunctioning to the RTC by the first available means of communication. RTC will issue instructions for the malfunction and these instructions will remain in effect until repairs are completed.

A. ACTIVATION FAILURE.

When notified of an activation failure:

1. Stop before entering the crossing.
2. Employee must dismount equipment and ensure all lanes of traffic are stopped.
3. Proceed only on signal from employee at the crossing.

EXCEPTIONS: If Crossing is protected by Flagman, proceed into the crossing only after receiving verbal or hand signal from the employee at the crossing. If there is one properly equipped flagman available, speed must not exceed 15 MPH until the crossing is completely occupied. Then proceed at

normal speed. If there is a properly equipped flagman available to provide warning for each direction of vehicular traffic or at least one uniformed law enforcement officer, movement may proceed through the crossing at normal speed.

Flagman is defined as a person other than a train crew member who is equipped with a vest, shirt, or jacket of a color appropriate for daytime flagging such as orange, yellow, strong yellow-green or fluorescent versions of these colors or other generally accepted high visibility colors. For nighttime flagging, similar outside garments shall be retro reflective. Acceptable hand signal devices for daytime flagging include "STOP/SLOW" paddles or red flags. For nighttime flagging, a flashlight, lantern, or other lighted signal shall be used.

B. FALSE ACTIVATION.

When notified of a false activation:

1. Proceed into the crossing not exceeding 15 MPH until the crossing is completely occupied. Then proceed at normal speed.
2. If shoving, crossing must not be occupied until warning has been provided to vehicular traffic by an employee on the ground at the crossing.

EXCEPTION: If there is a properly equipped flagman available to provide warning for each direction of vehicular traffic or at least one uniformed law enforcement officer, movement may proceed through the crossing at normal speed after receiving verbal or hand signal from employee at the crossing.

Flagman is defined as a person other than a train crew member who is equipped with a vest, shirt, or jacket of a color appropriate for daytime flagging such as orange, yellow, strong yellow-green or fluorescent versions of these colors or other generally accepted high visibility colors. For nighttime flagging, similar outside garments shall be retro reflective. Acceptable hand signal devices for daytime flagging include "STOP/SLOW" paddles or red flags. For nighttime flagging, a flashlight, lantern, or other lighted signal shall be used.

C. CROSSBUCK DOWN.

When notified that crossbucks are knocked down at a crossing not protected by automatic warning devices:

1. Stop before entering crossing.
2. Proceed only on signal from employee at the crossing.

EXCEPTION: If Crossing is protected by Flagman, proceed into the crossing only after receiving verbal or hand signal from the employee at the crossing. If there is one properly equipped flagman available, speed not to exceed 15 MPH until the crossing is completely occupied. Then proceed at normal speed. If there is a properly equipped flagman available to provide warning for each direction of vehicular traffic or at least one uniformed law enforcement officer, movement may proceed through the crossing at normal speed.

Flagman is defined as a person other than a train crew member who is equipped with a vest, shirt, or jacket of a color appropriate for daytime flagging such as orange, yellow, strong yellow-green or fluorescent versions of these colors or other generally accepted high visibility colors. For nighttime flagging, similar outside garments shall be retro reflective. Acceptable hand signal devices for daytime flagging include "STOP/SLOW" paddles or red flags. For nighttime flagging, a flashlight, lantern, or other lighted signal shall be used.

In either case of Activation Failure, False Activation, or Crossbuck Down, whistle signal 410(7) must be sounded regardless of any Locomotive Whistle Quiet Zone. Anytime an employee is on the ground providing warning, employee must be positioned in a safe location to avoid injury. Do not cross or stand in traffic lanes when warning traffic.

When advised by signal employee at the crossing, "Repairs have been completed at the crossing at MP____, the instructions in GBO No.___ no longer apply." Crew member will repeat the instructions to the signal employee, who will state, "that is correct, (the signal employee's name) and the time." Crew member will write signal employee's name, time, and mark an "X" on the GBO.

Known Rule 529 Conditions
When it is known that Rule 529 protection will be required at a crossing equipped with automatic warning devices due to scheduled maintenance or construction, the request must be received by the RTC no later than 1800 hours the previous day.

532. PROHIBITED SPOTTING DISTANCE.

Unless required for loading or unloading purposes, equipment must be left a minimum of 25 feet from the end of track, stop block or other device used to indicate the end of track. When equipment must be left within this 25 feet restricted area to facilitate loading or unloading, a stop must first be made 25 feet from end of track. Before coupling to equipment which has been left within this restricted area, a stop must be made prior to coupling, between 12 and 6 feet.

533. SECUREMENT OF KEY TRAINS

Key Trains are defined as a train with the following cars:

A. One (1) or more tank carloads of any one or any combination of poisonous/toxic by inhalation as defined in 49 CFR 171.8, anhydrous ammonia (UN 1005), or ammonia solutions (UN 3318);
B. One (1) or more loads of spent nuclear fuel (SNF) or high level of radioactive waste (HLRW) moving under the following Hazardous Materials Response Codes 4929142, 4929143, 4929144, 4929147; or
C. Twenty (20) carloads or intermodal portable tank loads of any combination of hazardous material.

Key Trains must never be left unattended outside of a yard or terminal, except under the following circumstances:

- crew hours of service expired or no crew available,
- train is unsafe to move due to locomotive failure or defective railcar in train,
- route impassable or unsafe to traverse, examples include:
    a. derailment;
    b. mechanical defect, e.g., overheated equipment, dragging equipment, engine failure, shifted load, failed knuckle or drawbar, broken/ cracked wheel or axle;
    c. maintenance or structural defect, e.g., signal, track, ties, ballast, bridge, tunnel, or other man-made structure including those adjacent to railroad right of way;
    d. pedestrian, vehicle, or equipment including emergency responder(s) on/near railroad right of way;
    e. weather condition, e.g., flood, snow, high wind, extreme temperature;
    f. natural or man-made disaster, e.g., earthquake, slide, fire.

- train staged due to terminal or yard congestion,
- train held in siding due to main track capacity limitations,
- trains staged for interchanges,
- unable to interchange due to track capacity limitations, and
- customer track full or staged for loading/unloading.

Whenever a Key Train is to be left unattended in accordance with the above circumstances, a job briefing must be held with the RTC to include at a minimum the following:

- locomotive reverser(s) removed from all locomotive cabs, and taken by engineer;
- number of handbrakes applied;
- tonnage and length of train;
- grade and/or terrain features of track where train will be left;
- relevant weather conditions, e.g., high winds, heavy rain, blowing snow; and
- type of equipment being secured, e.g., unit train, intermodal train, manifest train.

RTC must verbally confirm with the train crew that the securement information received from train crew has been confirmed and verified as meeting the requirements of USOR 602, i.e., verify the number of handbrakes applied against the handbrake chart for the grade where train will be left unattended. Capturing these 6 bullet statements on the RTC's radio voice recording is sufficient; written recording will not be required.

However, the SRS Line number and Car Numbers of handbrakes applied must be noted on the cover of Trains Work Order clearly and legibly for the next crew to easily read and understand where all the handbrakes are applied.

Exception: Equipment may be cut away with an emergency application to the cars to be left standing and properly secured per USOR 602, and left unattended without performing the above job briefing with the RTC under the following circumstances, provided the on-duty crew is actively engaged in one of the following operations (i.e., not on break):

- picking up, setting off, or repositioning cars at an industry;
- assembling cars from several tracks adjacent to the main track;
- adding, removing, or swapping locomotives; and
- moving part of the train when doubling a hill or cutting crossings.

534. EMERGENCY RESPONDERS

Railroad employees, when made aware, must inspect or confirm inspection by a qualified railroad employee of all equipment that any emergency responder has been on, under, or between for proper securement prior to leaving that equipment unattended.

SWITCHING

600. SWITCHING SAFELY AND EFFICIENTLY.

While switching, employees must work safely and efficiently, avoiding delay and damage to lading, equipment, structures or other property. Precautions must be taken to prevent unintended rollbacks that can foul other tracks or equipment.

NOTE: COUPLING SPEED FOR ALL RAILROAD EQUIPMENT MUST NOT EXCEED 4 MPH.

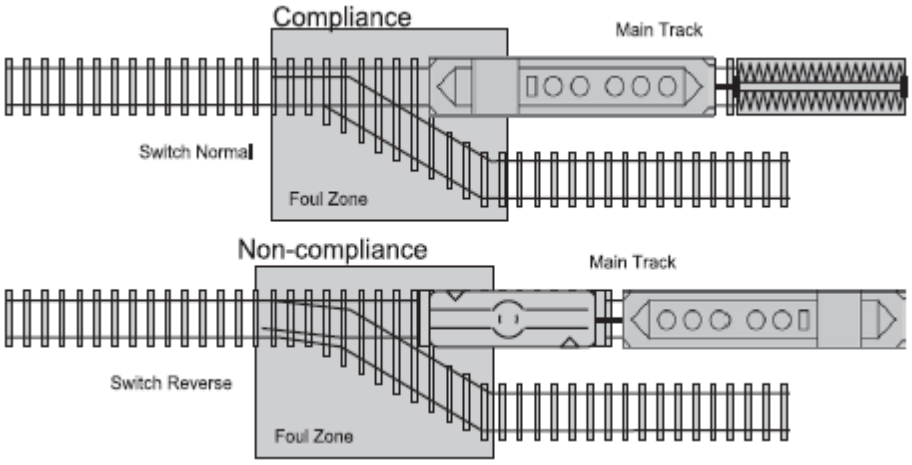
Before working, a job briefing must be conducted covering the following:

- movements to be made,
- movements of other crews switching in the area, and
- type of point protection required for shoving movements.

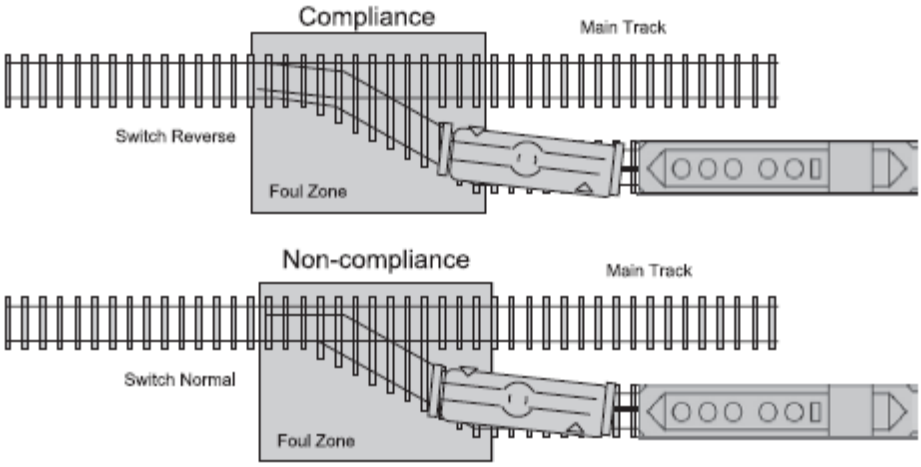
601. LEAVING EQUIPMENT IN THE CLEAR.

Equipment must not be left where it will foul another track or cause injury to employees riding on the side of cars or engines. Equipment may be left as follows:

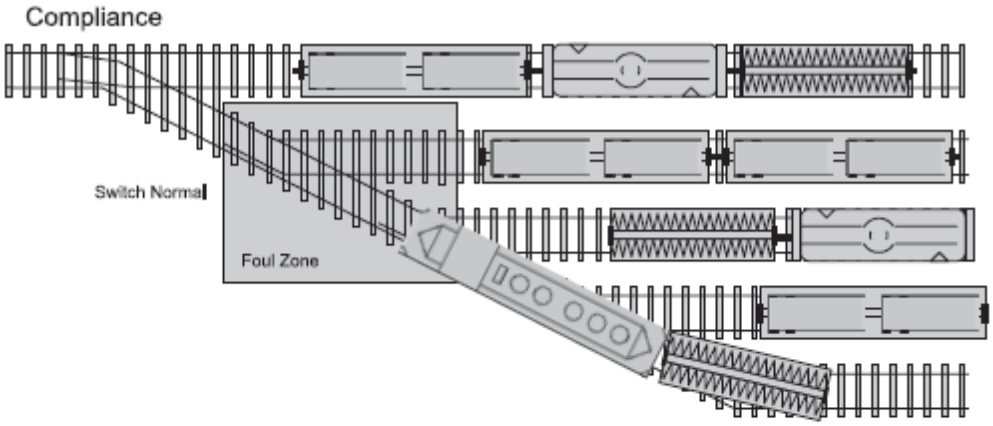
On a Main Track fouling a siding switch when the switch is lined for the main track.

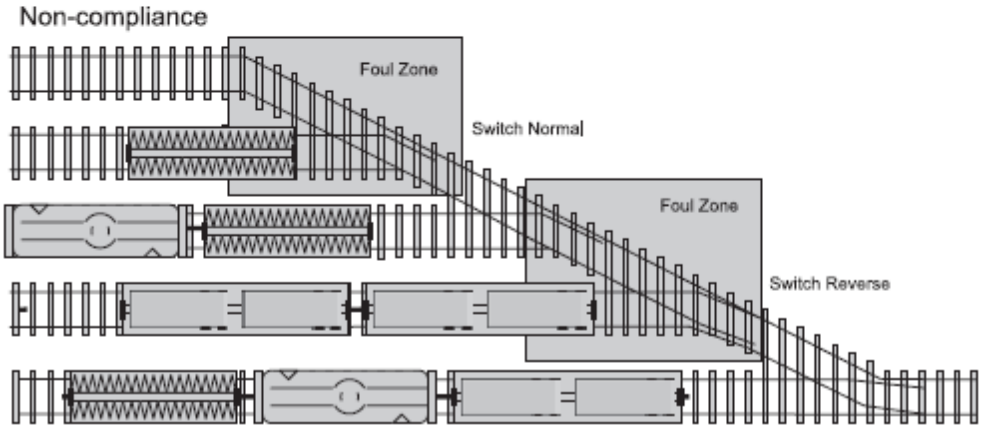


On a siding fouling the main track when the switch is lined for the siding.

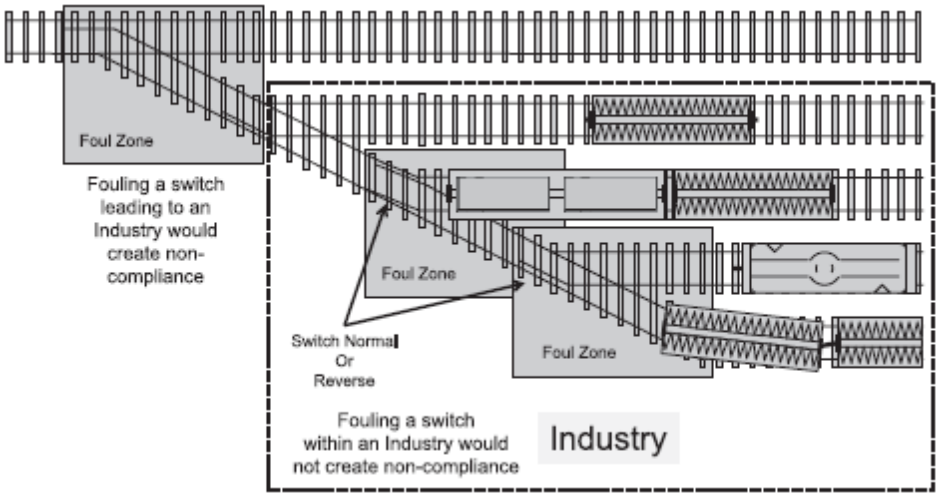


On a lead fouling a yard track when the switch is lined for the lead.





On an industry track beyond the clearance point of the switch leading to the industry track.



Where the clearance point is indicated, equipment must be left beyond that point. In yard tracks where cars are switched or staged the clearance point is identified by bright green paint along the tie and both sides of the web and head of rail for the width of the tie. Where there is no indication of the clearance point, employees will determine if the equipment is clear of an adjacent track by taking a position on the end of the tie and close to the near rail of the adjacent track and raise their arm to shoulder height to the end of the car that is to be left. If the car is clear of the fingertips of the raised arm it is clear of the adjacent track.

603. COUPLING/UNCOUPLING PRECAUTIONS.

When coupling to equipment, verify it is properly secured and can be coupled to safely. Before moving the equipment:

1. stretch the slack to ensure all couplings are made, and
2. check cars for handbrakes that are applied.

Do not cut-off or leave equipment in curves and turnouts where couplers may by-pass when re-coupling. When coupling to equipment in any other than straight track, use caution, stopping, if necessary, to ensure couplers are properly aligned.

604. KICKING OR DROPPING CARS.

Kicking cars is prohibited unless within the confines of a classification yard where normal switching operations occur, when it will not endanger employees, equipment, or contents of cars. Kicking uphill or dropping of any equipment, utilizing the locomotive or gravity, is prohibited.

Classification yards where kicking is prohibited will be identified by timetable, special conditions.

The following equipment must not be cut off in motion or struck by any car moving under its own momentum:

- passenger cars,
- restricted dimensional loads,
- engines,
- cars loaded with maintenance of way equipment,
- scale test cars, and
- any placarded rail car restricted by US Hazmat Handling Instructions.

605. TRACKS WHERE CARS ARE BEING LOADED OR UNLOADED.

Before coupling to or moving cars on tracks where cars are being loaded or unloaded, crew members must be sure that all of the following have been removed or cleared:

- persons in, on or about cars,
- platforms or boards,
- tank car couplings and connections,
- conveyors,
- spouts and similar connections,
- vehicles, and
- other obstructions.

In addition:

- Be careful to avoid damage to lading in partially loaded cars.
- Do not handle cars that are improperly or unevenly loaded if load could shift or fall from the car, or if the car could derail or overturn.
- Return any car placed for loading or unloading to the location it was found if it has not been released for movement.
- Do not pull cars from any loading or unloading facility until any major accumulation of debris is removed.
- Plug and swinging door cars must not be moved until the doors are closed or secured, except when necessary to position for repairs. However, crew members must not attempt to close those doors. If plug door is found open en route, car may continue in the train to the next location where mechanical forces are available to close the door.

606. MOVING EQUIPMENT THROUGH GATES/DOORWAYS, BUILDINGS and DESIGNATED SHOP TRACKS.

Before initial movement of equipment through gates, doorways, or similar openings, stop to ensure the openings are completely opened and secured. When overhead or side clearances are close, make sure movement is safe. Subsequent movements need not stop after completing initial verification.

Employees are prohibited from riding on the side of a car, engine, or other equipment anytime inside of buildings or when operating on designated shop tracks. Shop tracks are designated either by signs positioned at the entrance to the track(s) or specified by local instructions in the timetable.

SWITCHES

700. HAND OPERATION OF SWITCHES.

Job briefings will be conducted before employees use hand operated switches and derails, each time a work plan is changed, and at the end of the work.
It will include:

- name of employee responsible for operating the switch or derail,
- the work to be performed, and
- the position in which the switch or derail is to be left.

When spring or dual control switches are operated by hand, all rules governing hand-operated switches apply to them, except cars must not be dropped over them.

704. STANDING CLEAR OF MAIN TRACK SWITCHES.

Except when switching, when a movement is closely approaching or passing over a main track switch, other than a dual control switch, employees must keep at least twenty (20) feet from the switch stand, and must, when practicable, stand on the opposite side of the switch stand.

705. SWITCHES/DERAILS EQUIPPED WITH LOCKS OR HOOKS.

When not in use, switches and derails must be locked or hooked if so equipped. Before making movements in either direction over these switches, make sure the switch is latched or secured by placing the lock or hook in the hasp. However, when making train movements in facing point direction and the switch will not be continuously attended, lock switches equipped with a lock.

After locking or hooking a switch or derail, test the lock or hook to make sure it is secured. Report any missing or defective switch locks or hooks at once to the RTC, yardmaster, or supervisor in charge.

708. CROSSOVER SWITCHES.

Both switches of a hand-operated crossover must be lined before a crossover movement starts, and movement must be complete before either switch is returned to original position, except when one crew is using both tracks connected by the crossover during continuous switching operations.

Switches must be left in corresponding position when not in use, either both lined for straight movement, or both lined for crossover movement. If either switch of the crossover is connected to a main track or siding, it must be left lined for through movement on the main track or siding.

EXCEPTION: Switches may be left out of corresponding position when one end of a crossover must be lined to prevent access because of the following:

- Blue Signal Protection,
- On-Track Safety, or
- During maintenance, testing or inspection of hand-operated crossovers in CTC.

Switches must be immediately restored to corresponding position after protection is no longer required.

711. DAMAGED OR DEFECTIVE SWITCHES.

A switch that requires excessive force to operate, must not be lined. To ensure other employees do not attempt to line the switch, it must be tagged and reported for repair.

1. Out of service tag is applied by the employee directly to the switch lock, keeper/hook.
   If a tag is not available a b/o tag can be used.
2. Employee reports to RTC on CN Radio who will report to the S&C Call Desk
   Report to Include – Sub, Mile, Station, Switch ID, Defect, Reporting employees Name, position.

Note: Terminals where yardmaster is on duty 24/7 – report directly to yardmaster or terminal coordinator.

714. PROCEDURE TO HAND-OPERATE DUAL CONTROL SWITCHES.

An employee must get permission from the control operator to operate a dual control switch by hand. Operate the switch as follows:

1. Unlock the switch lock.
2. Place the selector lever in the HAND position or remove the hand crank from the holder.
3. Operate the hand throw lever until the switch points move with the movement of the hand throw lever, and then line the switch points for the route to be used.
4. After all wheels of at least one unit or car have passed over the switch points, return the switch to power (unless otherwise instructed by the control operator) by restoring the selector lever to the POWER or MOTOR position and lock. When operating on-track equipment that does not shunt the track, do not restore the switch to power until all equipment has cleared the switch.

For other types of switch machines, follow the instructions for operation posted at the switch or by Timetable Instructions.

When necessary for a locomotive engineer to hand operate a dual control switch without assistance from another employee, after hand operating the switch, it may be returned to power, provided all wheels of at least one unit of the locomotive consist are standing entirely between the opposing absolute signals that govern movement over the switch. If the switch does not operate after being returned to power, movement may then proceed over the switch.

SIGNAL SYSTEM RULES

***Be sure to review signals 803-816 and 845-849.**

854. NEXT GOVERNING SIGNAL.

A train may comply with the next signal's indication when its aspect can be clearly seen, and the signal governs the track where movement will be made. This does not apply when a rule or previous signal indication requires movement at restricted speed.

855. TRAIN DELAYED WITHIN A BLOCK.

If a train has entered a block on a proceed indication that does not require restricted speed, and the train stops, or its speed is reduced below 7 MPH the train must:

> In ABS proceed at restricted speed until the next signal is visible, that signal displays a proceed indication, and the track to that signal is clear. Passenger trains making regular station stops will proceed prepared to stop in one half the range of vision until the next signal is visible, that signal displays a proceed indication, and the track to that signal is clear.
>
> In CTC proceed prepared to stop at the next signal until the next signal is visible and that signal displays a proceed indication.

856. INITIATING MOVEMENT BETWEEN SIGNALS.

Move at restricted speed until the leading wheels pass the next governing signal or the end of signaled territory when:

- a train enters a block with no governing signal,
- the previous signal indication is unknown, or
- a change of direction is made within a block.

CENTRALIZED TRAFFIC CONTROL (CTC)

900. AUTHORITY TO ENTER CTC LIMITS.

A train must not enter or occupy any track where CTC is in effect unless a controlled signal displays a proceed indication or the control operator authorizes the following:

- movement past a Stop Indication;
- a train to enter a track between block signals as follows, "(Train) at (location) has authority to enter (track) and proceed (direction.)" After entering the track, the train is authorized to move only in the direction specified; or
- track authority.

MANDATORY DIRECTIVES

1009. VOIDING MANDATORY DIRECTIVES.

A crew member must draw an "X" across each copy of a mandatory directive after the limits have been reported clear or the directive has been made void. Train crew members must retain mandatory directives during the entire tour of duty on which they were received. Employee in charge of roadway workers must retain mandatory directives while they are in effect.

TRACK SIGNS AND TRACK CONDITIONS

1102. PLANNED WORK.

Planned Work is the preferred method of protecting track work on a controlled track and issued on a GBO. Planned Work may also be used to protect track work on Main Tracks in Yard Limits (with the exception of Remote-Control Zones where they MUST NOT be used), either signaled or non-signaled by issuance of a GBO. Red signs (beginning of the limits) must identify the work limits, and yellow-red signs must identify the 2-mile advance warning for the work limits. All affected tracks must be identified on the GBO. Planned Work Limits must not overlap with:

- Other Planned Work Limits, or
- Work Project Protection

No forward or shoving movement of a train may be made into or within Planned Work limits during the effective time without permission of the EIC. Once cleared for movement by the EIC, if the train stops or is delayed, EIC must be informed. A train within the limits at the time Planned Work takes effect must stop unless otherwise instructed by the EIC. Before arriving at the limits, a crew member must attempt to contact the EIC to avoid delay.

Roadway Workers authorized by Track Authority may not enter or move within Planned Work limits without permission of the EIC of the Planned Work.

All instructions from the EIC must be repeated and confirmed with "that is correct" and all movements made at Restricted Speed unless otherwise specified by the EIC. Instructions from the EIC may only be relayed by the RTC or control operator.

If the EIC must leave Planned Work limits before expiration of time, a new EIC will be designated. The new EIC will communicate the change to the RTC, and to train crew members when giving instructions.

If Planned Work limits must be canceled before the expiration time, the following will apply:

1. EIC will notify the RTC.
2. If RTC is able to notify all affected trains, the limits will be canceled. EIC will then remove Red Signs first, and Yellow-Red Signs next.
3. If RTC is not able to notify all affected trains, EIC must remain at the Planned Work limits to communicate with trains entering the limits until either released by the RTC or time limits expire.

PEER TO PEER GUIDELINES FOR PLANNED WORK

Before entering or movement is made within Planned Work Limits employees must receive permission from the EIC. *Note: All communication is transmitted via radio.*

1. Crew Member: CN 1234 South calling EIC Smith.
2. EIC Smith: EIC Smith answering CN 1234 South
3. CN 1234, South, approaching GBO item 6734, on the Waukesha Subdivision
4. EIC Smith in charge of GBO item 6734 between MP 112.0 and MP 112.5 Waukesha Sub gives the CN 1234 South permission past the red sign at MP 112.5 without stopping and thru my entire limits, no further restrictions (or list EIC instructions if applicable) All men and equipment are in the clear.
5. CN 1234, South, without stopping, has permission past the red sign, MP 112.5 and permission through your entire limits, no further restrictions (or list EIC instructions if applicable), all men and equipment are in the clear, is that correct?
6. EIC Smith: "That is correct", EIC Smith, out.

1103. TEMPORARY SPEED RESTRICTIONS.

When necessary, GBO or other written instructions will be used by the RTC to protect temporary speed restrictions.

Employee requesting the speed restriction must provide protection until RTC confirms that instructions will be issued to all affected movements.

AIR BRAKE & TRAIN HANDLING ~ABTH~

AIR BRAKE PRESSURES, TESTS, AND INSPECTIONS

Rule 102. Operative Brakes
103. Brake Pipe Integrity
104. Class I Brake Test-Initial Terminal Inspection
105. Air Slip
106. Class IA-1,000 Mile Inspection
108. Class III-Trainline Continuity Inspection
109. Transfer Train Brake Test
111. Test Using Yard Air
112. Kept Charged
113. Electronic Verification of Set & Release

INSPECTIONS

Rule 204. Freight Car Inspection
206. Wheel & Axle Numbering

TRAIN EQUIPMENT & OPERATION

Rule 500. Detaching Locomotive(s) and/or Cars
501. Angle Cocks
502. Securing Unattended Trains or Equipment
503. Hand Brake Test
504. Cutting Out Air Brakes
511. Telemetry Device
512. Hand Gauges
513. Retaining Valves

AIR BRAKE PRESSURES, TEST, AND INSPECTIONS

102. Operative Brakes

Air brakes on all cars must be operative when departing the initial terminal.
If brakes fail en route:

- At least 95% of the cars in a train must have operative brakes.
- No more than two consecutive cars may have the brakes cut out.
- Each control valve on an articulated car shall be considered as one car in the application of this rule.
- The rear car of every train must have operative air brakes.

EXCEPTION: A rear car of a train without operative brakes may be moved to the first available auxiliary track where the car may be switched or set out.

103. Brake Pipe Integrity

Test brake pipe integrity using either the Air Flow Method (AFM) or Brake Pipe Leakage Method when conducting the following:

- Class I Brake Test.
- Class IA Brake Test.
- On cars pretested with yard air, at the operating pressure of the train after locomotives have been attached.

Air Flow Method (AFM)
When properly equipped, AFM will be used to qualify brake pipe integrity regardless of brake pipe leakage. To qualify a train's air brake system, the train must be equipped as follows:

- The controlling locomotive has pressure maintaining type automatic brake valve.
- The locomotive has a calibrated air flow indicator or air flow meter.
- The train must be equipped with an operative end of train telemetry device or gauge.

Procedure for Conducting AFM Test

1. Charge the air brake system to within 15 psi of the pressure at which the train will be operated, but not less than 75 psi, as indicated by an accurate gauge or EOT device at the rear of the train.
2. Measure airflow as indicated by a calibrated AFM indicator. Once the flow is below 60 CFM, brake integrity is qualified.

Brake Pipe Leakage Method
Procedure for Brake Pipe Leakage Test.

1. Charge the air brake system to within 15 psi of the pressure at which the train will be operated, but not less than 75 psi, as indicated by an accurate gauge or EOT device at the rear of the train.
2. When signal is received to apply brakes, make a 20-psi brake pipe reduction.
3. After the brake pipe has finished exhausting, cut out the maintaining feature of the automatic brake.
4. Wait 60 seconds.
5. Observe brake pipe pressure does not exceed 5 psi leakage in the next 60 seconds.
6. Inspect the car(s) or train according to the appropriate air brake test.

When signal is received to release brakes, move the automatic brake valve handle to the RELEASE position. Cut in maintaining feature of the automatic brake valve.

104. Class I Brake Test Initial Terminal Inspection

Location of Test
Class l Brake test must be performed on all cars in a train at the following locations:

- Where the train is originally assembled, except at locations where Transfer Train Brake Test was performed.
- Where a unit or cycle train has traveled 3,000 miles since its last Class I Test.
- Where the train is received in interchange or at a location where the make-up of the train is changed except by:
    1. Picking-up a single car or a solid block of pre-tested cars that have not been off air for more than 24 hours.
    2. Setting out a single car or a solid block of cars.
    3. Setting out defective car(s),
    4. Changing the motive power, or
    5. A combination of any of the above. Performing any single instance listed in steps 1-4 or a combination of any or all of the above would require a Class III Continuity Inspection to be performed.

NOTE: Cars set out from only one precious train are still considered a "solid block" when divided into smaller segments to accommodate trackage constraints and placed back in the same order as when removed from pervious train. In this instance, a Class III Continuity Inspection would be required.

Procedure for Inspection
Before or during the air brake test, perform the following:

- Inspect angle cocks and verify in proper position.
- Inspect air hoses and verify they are in condition for service and properly coupled.
- Inspect the system for leakage. Make necessary repairs to reduce leakage to a minimum.
- Inspect retaining valves and verify they are in the direct exhaust position.
- Inspect each side of each car sometime during the inspection process to examine and observe the functioning of all moving parts of the brake system on each car.
- Brake rigging does not bind or foul.
- All parts of the brake equipment are properly secured.
- Brakes on train apply and remain applied on each car until signal is given to release. Any car whose brakes release prior to signal being given to release may be retested once and a determination must be made that the brakes will remain applied for a period of no less than 3 minutes until a release is initiated.
- Piston travel meets requirements.

Procedure for Test

- Charge the brake system to within 15 psi of the regulating valve setting, but not less than 75 psi, as indicated by an accurate gauge or EOT device at the rear of the train.
- Perform an integrity test as prescribed by ABTH Rule 103.
- When instructed by the inspector, make a 20-psi brake pipe reduction.
- Perform Initial Terminal Inspection.
- Release the brakes when instructed by the inspector.
- Notify the inspector that the brakes have been released.
- Verify all brakes have released. This may be made as the train departs at a speed not exceeding 10 MPH. This "roll-by" of the brake release does not constitute an inspection of that side of the train as required by ABTH Rule 204.

105. FRA Air Slip

A record of Class l Test is only required where the train was originally assembled and must be retained on the controlling locomotive until:

- Train reaches its destination, or
- Next location where the entire train receives a Class l Test.

A qualified employee who participated in the test and inspection or who knows the test was completed, must notify the engineer either verbally or in writing that the test has been completed satisfactorily. When received in writing, the engineer will accept the notification as authority the test has been completed satisfactorily. When received verbally, the engineer will record the following information on Form 6180-43 or on the train consist:

1. Date
2. Time
3. Location
4. Number of freight cars inspected
5. Identification of person(s) conducting test.

Interchange of Train with Foreign Railroads

Crews accepting trains received in interchange from foreign railroads must be provided the Class l inspection record for that train and it must be maintained in the cab of the controlling locomotive to destination. Class l inspection records must be provided when trains are delivered in interchange to a foreign railroad.

Note: Cars picked up, inspected and air tested en-route do not require written documentation of the Class I inspection. The number of cars in a train may not be the same as the number of cars shown on the written record.

106. Class IA Brake Test 1000 Mile Inspection

At designated locations on specific trains, conduct a 1,000-mile air brake test and inspection.

Procedure for Inspection

Before or during the air brake test, perform the following:

- Inspect angle cocks and verify in proper position.
- Inspect air hoses and verify they are in condition for service and properly coupled.
- Inspect the system for leakage. Make necessary repairs to reduce leakage to a minimum.
- Inspect retaining valves and verify they are in the direct exhaust position.
- Inspect each side of each car sometime during the inspection process to examine and observe the functioning of all moving parts of the brake system on each car.
- Brake rigging does not bind or foul.
- All parts of the brake equipment are properly secured.
- Brakes on train apply and remain applied on each car until signal is given to release. Any car whose brakes release prior to signal being given to release may be retested once and a determination must be made that the brakes will remain applied for a period of no less than 3 minutes until a release is initiated.

Procedure for Test

- Charge the brake system to within 15 psi of the regulating valve setting, but not less than 75 psi, as indicated by an accurate gauge or EOT device at the rear of the train.
- Perform an integrity test as prescribed by ABTH Rule 103.
- Verify brakes apply on each car.
- Brakes must remain applied until the controlling locomotive initiates the release.

108. Class III Trainline Continuity Inspection

A trainline continuity test must be performed when the configuration of the train has changed as follows:

- Motive power changed; or
- Single car or solid block of cars are set out from the train; or
- At an interchange location or point other than the initial terminal for the train, where a single car or solid block of cars is added to the train that have previously air tested and have not been off air for more than 24 hours provided:
    1. They are comprised of cars from only one previous train, and
    2. Have remained continuously and consecutively coupled together with the trainline remaining connected, other than for removing defective equipment, since being removed from its previous train.

NOTE: Cars set out from only one previous train are still considered a "solid block" when divided into smaller segments to accommodate trackage constraints and placed back in same order as when removed from previous train.

Procedure for Testing and Inspection

- Charge the brake system to within 15 psi of the regulating valve setting, but not less than 75 psi, as indicated by an accurate gauge at the rear of the train.
- Make a 20-psi brake pipe reduction.
- Determine that the brakes apply and release on the rear car.
- If available, end-of-train telemetry device may be used to verify the application and release of the brakes on the rear car of the train.
- Before proceeding it must be known that the brake pipe pressure is being restored.

If a communication link between a controlling locomotive and a DP locomotive attached to the rear end of a train is utilized to determine that brake pipe pressure is being restored, the operator shall know that the air brakes function as intended on the DP locomotive.

Whenever the continuity of the brake pipe is interrupted with the train consist remaining unchanged i.e., cutting a crossing, it must be determined that the brake pipe pressure is being restored as indicated by an accurate gauge on rear car or EOT device. On unattended trains, these instructions also apply if the train has remained continuously coupled.

109. **Transfer Train Brake Test**

When the train's movement will not exceed 20 miles, the following brake test must be performed:

- The air brake hoses must be coupled between all cars.
- The brake system is charged to no less than 75 psi as indicated by an accurate gauge or EOT device at the rear of the train;

- Make a 15-psi service brake pipe reduction;
- Brakes must apply on all cars.

Cars added to a transfer train en route must be inspected by the same requirements.

If the train's movement will exceed 20 miles or is not a transfer train, a Class I brake test must be performed. Transfer Train Brake Test does not apply to switching movements.

111. Test Using Yard Air

When train brake system is tested from a yard air supply, an engineer's brake valve or a standard test device must be used.

- The test may be conducted from either end of the train.
- A Class I test inspection must be conducted except the test will be conducted after a 15-psi reduction and the air pressure is charged to a minimum of 60 psi at the opposite end of the cars from the yard air supply.
- Brake pipe integrity must be established, and a Class III test performed from the locomotive before departure. If overcharge exists, reduce pressure per ABTH Rule 116.

Prior to connecting the ground air supply to the train line, condensation or other foreign matter must be removed from the air supply. To safely perform this, employees must:

- Firmly grip the glad hand end of the air hose ensuring the opening is facing away from you,
- Keep your face turned away to avoid flying debris from the charged air hose,
- Carefully open the ground air supply line allowing the air to exhaust into the atmosphere prior to connecting to the train line, to ensure the air hose is clear.
- Close the air supply and immediately connect to the train line.

112. Kept Charged

A train is considered "kept charged" unless it has been off air supply for more than 24 hours or the source of supply is less than 60 psi.

If the entire train is not kept charged, perform the same type of test that the train required to reach its present location, i.e., Class I, Transfer Train, etc. If a portion of a train is not kept charged, perform the brake test only on that portion.

113. Electronic Verification of Set and Release

When conducting any air brake test, it may be determined that brakes apply or release on the rear car by checking the reading transmitted to the HOT or a distributed power unit attached to the rear of the train indicates the following:

- When the rear brake pipe pressure decreases at least 6 psi, the brakes are applied.
- When the rear brake pipe pressure increases at least 3 psi, the brakes are released.

Do not use an EOT if the difference between the brake pipe pressure readings on the EOT and the HOT exceeds 3 psi.

INSPECTIONS

204. Freight Car Inspection

When personnel are not on duty primarily to inspect freight cars, other qualified employees can perform Pre-departure Inspection of Freight Cars – Appendix D.
Note: Appendix D Inspection is required on every car added to a train regardless of if an air test is required or not. When Appendix D inspection is performed by a crewmember of another train, results of the inspection must be verbally communicated directly to the crew adding the car(s) to their train or must receive the results in writing.

Each car placed in a train must be inspected for:

- Leaning
- Sagging
- Improper position on the truck
- Objects hanging or dragging from the car or extending from the side
- Insecurely attached doors
- Broken or missing safety appliances
- Insecure coupling device
- Overheated wheel or journal
- Broken or cracked wheel
- Brake that fails to release
- Any apparent hazard that could cause an accident

In addition, placarded hazardous material cars must be checked for:

- Contents leaking
- Markings, labels, and placards
- All closures secured

A freight car with any condition that makes movement unsafe must be corrected or not added to the train. A bad order freight car that is safe to move may be moved to the nearest car repair point with proper documentation. The conductor will inform other crew members of the restrictions.

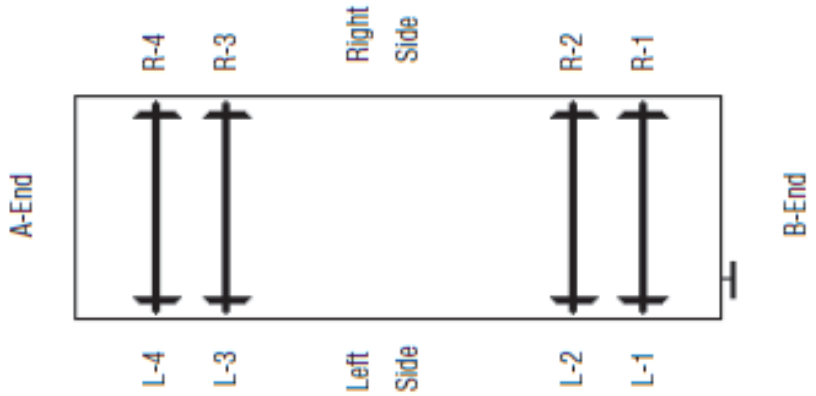
When an inspection of freight cars is required:

- Cars must not be moving
- Both sides of the cars must be inspected

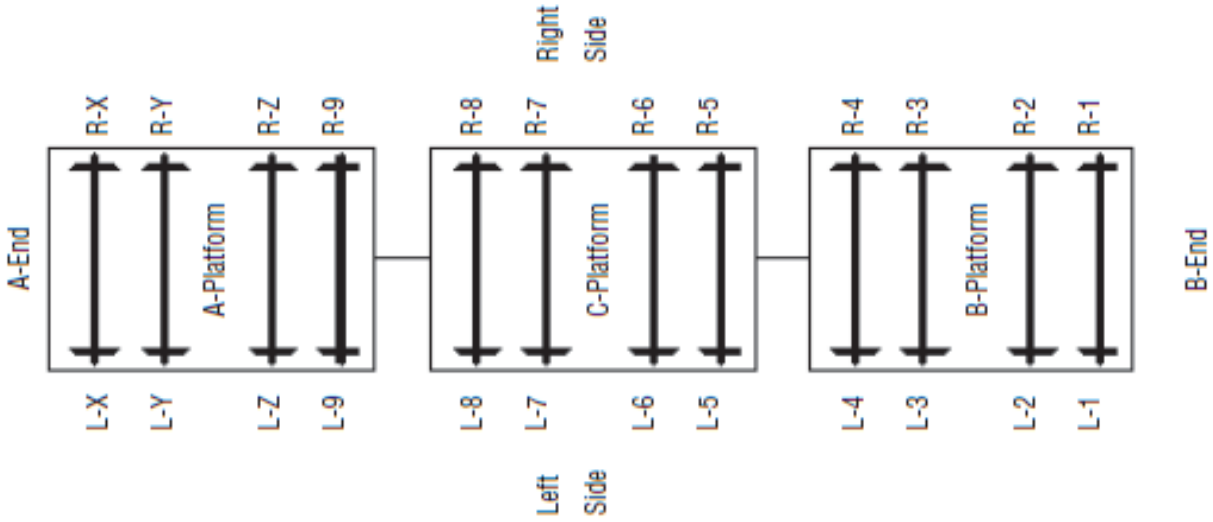
When air brake test is required, freight car inspections may be done at the same time, however, a roll-by inspection may not replace a stationary inspection of the cars.

206. Wheel and Axle Numbering

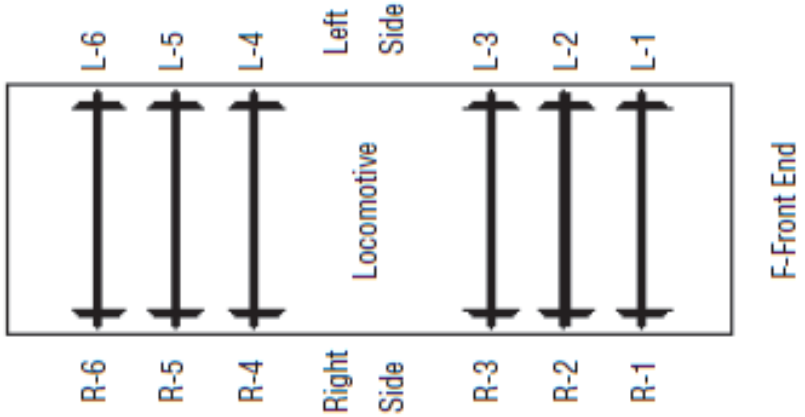
Face the B end of the car (handbrake end) and count away from yourself using the right side and left side.



Multi-Platform cars face the B platform and count away from yourself using the right and left side. The axle numbering ends at 9 then changes alphabetically backwards to Z, Y and X. For Cars with more than 12 axles the alpha continues backwards.



Locomotives, face the direction the locomotive is pointed and reference the right side and the left side of the locomotive counting back from the front of the locomotive. The letter "F" (stenciled on the side) references the front of the locomotive.



TRAIN EQUIPMENT & OPERATION

500. Detaching Locomotive(s) and/or Cars

When detaching locomotives or locomotives and cars:

1. Make a 20lb brake pipe reduction.
2. Secure equipment to be left per ABTH Rule 502.
3. After the exhaust has stopped, close angle cock on rear locomotive or last car to remain with the locomotive. Leave the angle cock open on the portion left standing.
4. Detach locomotive or locomotive and cars and move at least 50 feet from the cars left standing.
5. Allow brakes on standing portion to apply in emergency.
6. When available, use the HOT device to make sure that brake pipe pressure drops to 0 psi. If zero pressure is not displayed after locomotive is detached, the engineer must immediately notify trainman to inspect the portion left standing for improperly positioned angle cock.

Cold Weather Procedure:
When temperature is 32 degrees Fahrenheit or below, the above procedure may be modified if the detached portion will be re-coupled in a short amount of time as follows:

NOTE: If you are not made aware that another crew will be recoupling to these cars, and you are not going to recouple to these cars in a short amount of time then the cold weather procedure will not apply.

1. Secure the cars and test the effectiveness of the brakes on the cars you will be uncoupling from.
2. Close the angle cock on the portion to be uncoupled from.
3. Detach, and move 50 feet away from the detached portion.
4. Firmly grab the hose and hold it tightly up against the side of your leg. Do not let go until the angle cock is complete opened. Slowly open the angle cock on the detached portion to the OPEN position to allow the brake pipe to exhaust at a service rate.
5. Do not leave the detached portion until brake pipe pressure is ZERO.

***Bottling or maintaining air pressure in the brake pipe of equipment without a locomotive or other source of air attached is prohibited.**

NOTE: After the brake pipe pressure has completely exhausted, the angle cock on the standing portion of the train may be closed if:

- The cars will be immediately handled from the other end, or
- Locomotive will immediately run to the other end and will re-couple to the cars.

501. Angle Cocks

A. Angle cocks have two positions, OPEN and CLOSED. They must NEVER be left in-between these two positions.
B. When cutting in the air, open the angle cock slowly to prevent an emergency application.

Some locomotives are equipped with 'Vented Trainline Angle Cocks'. When opening this type of angle cock, a release of air may be heard. When coupling to other equipment with one of these locomotives, the angle cock on the locomotive must be opened first to charge the air hose connection between the locomotive and the equipment before opening the angle cock on the equipment. An UDE brake application may occur if this sequence is not followed.

Equipment Attached to Yard Air

When coupling to equipment attached to Yard Air, follow these steps:

1. Close the valve to the Yard Air.
2. Close the angle cock on the equipment being coupled to and remove the Yard Air hose.
3. Couple to equipment.
4. Couple hoses and slowly open angle cocks.

502. Securing Unattended Trains or Equipment

Air brakes must never be depended upon to secure unattended equipment. In yard tracks where cars are switched or staged, apply a sufficient number of handbrakes with a minimum of one, and one additional handbrake for every ten cars left unattended, up to a total of five handbrakes before testing the effectiveness of the handbrakes as prescribed by ABTH Rule 503, applying additional handbrakes as needed to secure; the following examples apply:

1 car – 1 handbrake
2 cars – 1 handbrake
10 -19 cars – 2 handbrakes
20- 29 cars – 3 handbrakes

NOTE: The above required number of handbrakes must be applied, unless timetable special condition specifies a minimum number of handbrakes at a specific location. This is also required when moving cars from a track to prevent any remaining cars from moving.

Do not move cars with handbrakes applied unless authorized by timetable special conditions.

A Handbrake Test must be performed on Unattended Trains or Equipment.

When applying handbrakes, do not bleed off cars.

If applying all handbrakes does not provide adequate securement, block the wheels.

EXCEPTION: Handbrakes are not required on Yard tracks:

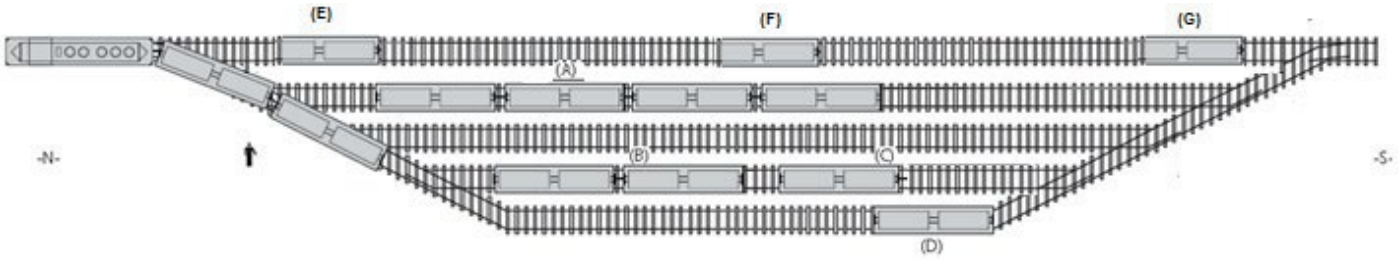
a) Which are being actively switched. The cars at the end of the track where the switching is being performed are not required to be secured unless the cars will roll back towards the switching lead.
    - The car or cuts of cars at the opposite end of the track must be secured.
    - The first car or cut of cars placed into a clear track must be secured.
    - Once employees leave the area or complete their switching, the cuts of cars must either be coupled together then secured, or the cuts on each end of the track must be secured.
    - Unless relieved by timetable special conditions, cars left on the switching lead must be secured with a minimum of one handbrake unless a qualified employee is positioned on the ground to apply a handbrake(s) should the equipment begin to move.
b) Where retarders or skates are being used, as long as the first set of trucks into the track are engaged with the skate.

Employees are empowered to apply handbrakes in any situation where they feel they cannot safely attend the equipment.

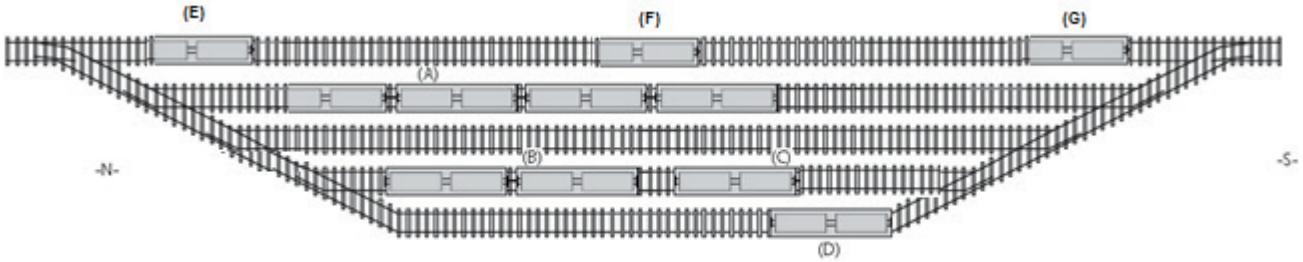
When the engine is coupled to a train or cars standing on a grade, do not release the handbrakes until the air brake system is charged sufficiently to prevent movement.

If in doubt of securement requirements, a Transportation Supervisor must be contacted immediately.

Yard tracks being actively switched.



When actively switching cuts A, D, C & G must be secured.



Once switcing is completed, cuts (A, B, C, D, E & G) must be secured

Yard not being actively switched the following securement requirements apply.

503. Handbrake Test

To test the effectiveness of the handbrake(s) on unattended trains or equipment, RCL and locomotives with electric handbrakes. After handbrakes have been applied per ABTH 502, the following procedures apply:

- Release automatic and independent brakes to allowing sufficient time for the air brakes to release.
- Employee on the ground must visually determine slack has adjusted and handbrakes are sufficient to prevent that equipment from moving.
- If unable or difficult to observe slack movement, or securing less than 10 cars, slightly move the car(s) to ensure sufficient retarding force.
- If the effectiveness test fails, additional handbrakes must be applied and retested.
- Unattended trains or equipment ATTACHED to a source of air. RCL and locomotives with electric handbrakes:
    - Release the automatic and independent brakes.
    - Observe the train for 1 minute for movement.
    - If the effectiveness test fails, additional handbrakes must be applied and retested.
- Make a 20lb brake pipe reduction, and secure the locomotive consists as required by ABTH Rule 411.

NOTE 1: Distributed Power remote consists coupled to unattended trains do not require handbrakes to be applied or other securement steps when the train is otherwise properly secured.

NOTE 2: In a yard, when locomotive consist is added to a train or equipment for the purpose of charging and the crew members will not remain with the train or equipment, it must be charged to at least 75 psi and make a 20lb reduction before crew leaves it unattended.

NOTE 3: Cold Weather Exception: When temperature is 10 Degrees F or below, make only a minimum reduction, not a 20lb reduction. Verify that a positive reduction occurs at the rear of the train to ensure continuity and secure the locomotive consist as required by ABTH Rule 411.

504. Cutting Out Air Brakes

Cut out control valves or other air brake devices only if they are defective or if the brake rigging is being serviced. If air brake devices must be cut out en route, notify the RTC and the MSREP with car number(s) and any other pertinent information.

A. Procedure to Cut Out Control Valve or Automatic Vent Valve
   1. Close the branch pipe cutout cock.
   2. When cutting out a control valve, drain the air reservoirs completely by operating the brake cylinder release valve.

B. Placement of Cars with Cut Out Air Brake Equipment
   1. Make sure no more than two air brake devices that have been cut out are together in a train.
   2. If necessary, to cut out a third consecutive air brake device, separate it from the other two cars with cutout brakes by at least one car with operative brakes.
   3. If one air brake device/control valve is cut out on a car with multiple control valves, consider the brakes on that car to be operative.

C. Rear Car Brakes
   The rear car of a train must have operative air brakes. However, the rear car brakes possibly could become inoperative en route. When this happens, follow these steps:
   1. Before moving the train, test the handbrake on the disabled car.
   2. Move the car directly to the first auxiliary track and switch it ahead of at least one car with operative brakes or set it out.

NOTE: To ensure an emergency application of the train's air brakes should the disabled car become separated from the train while moving to the auxiliary track, the air must be cut into the brake pipe. If the brake pipe on the disabled car is broken, car with broken brake pipe should be handled with brake pipe pressure in air hoses between the car ahead and the disabled car.

511. Telemetry Devices

All trains are required to be equipped with a Two-Way Telemetry Device except those listed below:

- Local and work trains with less than 4,000 trailing tons.
- Passenger trains.
- Trains that do not exceed 30 MPH.
- Train with equipment at the rear of train such as, locomotive, occupied caboose, occupied passenger car, etc.
- Lite Engines.

On trains equipped with a Two-Way Telemetry Device, the following is required:

- The device must be armed and capable of initiating an emergency application of the brakes.
- An End-of-Train device which utilizes batteries must be fully charged before leaving the initial terminal. The train must not depart intermediate terminal or crew change points when a "DEAD BAT", "REPL BAT", "BATTERY LOW" or similar message is displayed on the head-of-train unit in the locomotive.

Notify the Diesel Doctor immediately for all EOT failures. This does not relieve crews from notifying the RTC of impending en route delays. The MSREP will log the following basic information:

- Train ID
- Engine Number
- Type of failure
- Cause of EOT failure (message)
- Location where failure occurred
- EOT ID number
- HOT Make and Model
- Reason for bad order status

At the point of installation determine the inspection date on the HOT and EOT is not older than 368 days. Prior to performing train air brake tests, it must be determined that the reading of both devices do not differ more than 3 psi.

NOTE: An FRA waiver has been granted to eliminate the need to perform yearly testing of HOT's equipped with synthesized radio transmitters. All HOT's complying with this waiver will have a metal plate installed on the front of the device, replacing the date plate, which states, "This unit is equipped with a Wabtec synthesized radio that complies with FRA 2004-18895."

Head of train (HOT) devices must have all communication cables properly attached when being operated with two-way end of train (EOT) device.

Locomotives equipped with Integrated HOTD radios require the DP breaker to be in the "ON" position, even if DP is not being used.

Arming the Two-Way End of Train Device

Arming the system requires the coordination of two people on most Head-End-Devices (HOT), one at the HOT end and one at the End-of-Train (EOT).

1. Enter the EOT identification code.
2. After communication is established, press the "Test" button on the EOT. The "HOT" will read "ARM NOW".
3. Press the "TEST/ARM" button once on the "HOT" while the "ARM NOW" message is displayed. The message will display "ARMED" and the "EMERG ENABLED" indicator will be illuminated.

Testing of Two-Way Telemetry System

After each installation of either the HOT or EOT device on a train and before train departs:

1. It must be determined that the identification code entered into the HOT is identical to that on the EOT.
2. After charging the train, the pressure reading displayed on the HOT must be compared with that on the EOT.
3. The EOT shall be tested to ensure it is capable of initiating an emergency brake application from the rear of the train. If this test is conducted by an employee other than a member of the train crew, the engineer must be informed of the test results.
4. To perform the test:
    - Attach and arm the 2-Way EOT on the rear of train.
    - Close the angle cock between the last car and next to last car.
    - Transmit an emergency brake application signal on the HOT on the locomotive on the head-end, causing an emergency application at the rear of train.

5. When notified that a bench test has been performed, steps 1-4 above will not be required.

Disarming the Two-Way Telemetry System

When necessary to end two-way communication between the EOT and HOT, follow these steps:

- Disarming requires only one person at the HOT.
- Enter all zeros, (00000) in the HOT. On CN units, it may be necessary to enter all ones, (11111).
- Press the COMMUNICATION TEST / ARM button.
- The Two-Way Telemetry System is now disarmed, and HOT will display "EMERG. DISABLED."

NOTE: The system will not disarm on its own when the EOT battery is removed, or the HOT power supply is disconnected, only by using the above method, or by arming the HOT to a different EOT ID code is the system disarmed.

EOT Failure

Any of the following conditions will indicate an EOT failure and train speed must be immediately reduced to 30 MPH until communication has been re-established.

The Message display indicates:

- DEAD BAT
- VALVFAIL
    1. Radio break L.E.D. is lit.
    2. Pressure display is blanked.
    3. FR NOCOM – The display of "FR NOCOM" for a period of 10 minutes. During the 10-minute period the Engineer must make attempts to re-establish communication by pushing the COMMUNICATIONS TEST/ARM button.

VALFAIL – EXCEPTION: On Digitair model 6624 HOT, when display shows VALVE FAIL and device has been tested and it is known to be able to initiate an emergency application from the rear of the train, the 30 MPH speed restriction will NOT apply.

If a two-way end-of-train device fails en route, in addition to observing the 30 MPH speed restriction, the train must not operate over a section of track with an average grade of two percent or greater for a distance of two continuous miles, unless one of the following alternative measures is provided:

1. Place an occupied helper locomotive at the end of the train. The helper engineer must initiate and maintain two-way voice radio communication with the engineer on the head end of the train and must verify this again before passing the crest of the grade. If voice communication cannot be maintained, the two engineers will act immediately to stop the train until voice communication is resumed.
2. Place an occupied caboose at the end of the train, with a tested and functioning brake valve capable of initiating an emergency application. The employee in the caboose must establish and maintain voice communication with the engineer of the train.
3. Place a radio-controlled locomotive at the rear of the train under continuous control of the engineer on the head end of the train.

If the train with the failed two-way end-of-train device is already operating on the grade mentioned above, the train must be brought safely to a stop at the first available location, unless one of the above exceptions is being used.

Additional Two-Way Telemetry System Information

- Press COMM. TEST/ARM any time to check the communication between the two devices.
- "COMM OK" indicates devices are in communication, and if armed, "EMERG. ENABLED."
- "NO COMM" indicates radio break.
- Emergency switch might not function if "EMERGENCY DISABLED" is displayed.
- EOT emergency valve will require a minimum of 15 seconds to reset after actuated. No attempt to restore brake pipe pressure to the EOT should be attempted until emergency brake valve on EOT has reset.

Failure to wait a minimum of 15 seconds after testing the valve before restoring brake pipe pressure to the EOT may result in a false "VALVE FAIL" indication.

Locomotives equipped with Integrated HOTD radios require the DP breaker to be in the "ON" position, even if DP is not being used.

512. Hand Gauges

Any employee who uses a hand gauge for the purpose of air tests must calibrate the gauge every 92 days and apply the proper documentation to the air gauge.

A. Calibration
   1. Attach hand gauge to any lead locomotive and cut in the air
   2. Compare the psi reading from the hand gauge with that of the lead locomotive's train line air gauge.
   3. Readings must be within 3 psi of the locomotive air gauge, or the gauge must be removed from service until repaired.
   4. If within 3 psi of the lead locomotive gauge apply a completed calibration sticker to the top of the air gauge.

513. Retaining Valves

The retaining valve on each car controls brake cylinder pressure exhaust. All freight cars have retaining valves located at the "B" end of the car or at the side near the control valve. During a brake release, the retaining valve can be positioned to allow the exhaust of all brake cylinder pressure to the atmosphere or retain some of the pressure while the system is recharged.
The three-position retaining valve include these positions:

- DIRECT EXHAUST (EX). (The normal position) Handle turned down. Exhausts all brake cylinder pressure.
- HIGH PRESSURE (HP). Handle is 45 degrees below horizontal. Maintains a percentage of brake cylinder pressure.
- SLOW DIRECT EXHAUST (SD). Handle is 45 degrees above horizontal. Exhausts brake cylinder pressure for a blowdown time of approximately 86 seconds and continues to exhaust until all pressure is vented.

TIMETABLE NO. 3
MIDWEST DIVISION TERMINAL/YARD CHANNELS

Zone Terminal/Yard Radio Channels can be found here:

Select: 1) Documents,
2) US Time Tables,
3) Midwest,
4) Midwest-Division at bottom of list.

ZONE TERMINAL/YARD CHANNELS

Below is a list of designated AAR Channels for use only at the following Zone/Terminal Yards.

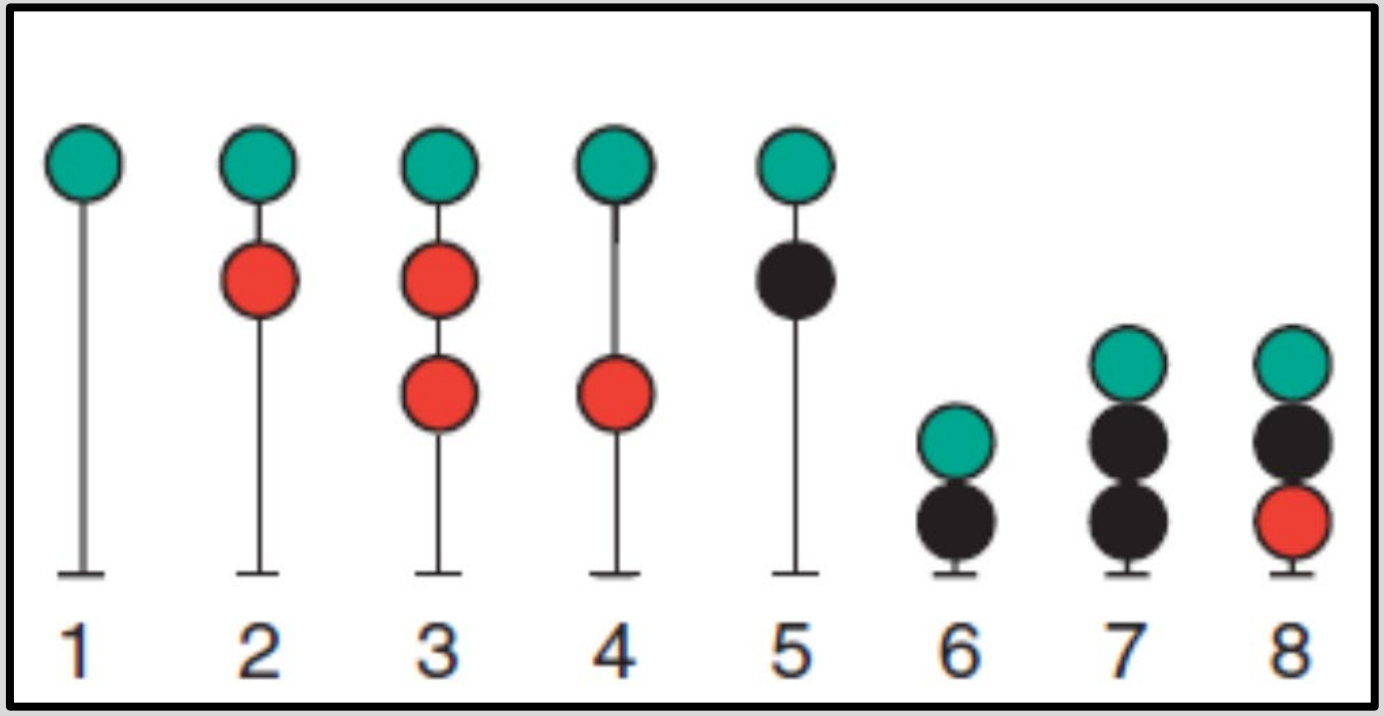
Note: For Base Radios, channels listed below are the ONLY authorized channels to be used for communication.

TERMINAL	FUNCTION/OPERATION	AAR CHANNEL/RADIO PRE-DIAL
Fond du Lac	Northbound Trains Yarding and Departing (CH 2) (After contacting North Yard switch crews on CH 7, trains working tracks 30-39 & 51-54 must work on CH 2)	(010 010)
	Southbound Trains Yarding and Departing (CH 4) (After contacting South Yard switch crews on CH 8, trains working tracks 55-75 & 266 must work on CH 4)	(015 015)
	Yardmaster (CH 5) (Yardmaster can only be contacted on CH 5)	(049 049)
	Mechanical and Engineering (CH 6)	(064 064)
	Yard Switch Crews on RIP tracks, 30-39 & 51-54 (CH 7)	(076 076)
	Yard Switch Crews on Tracks 55-75 & 266 (CH 8)	(085 085)
Neenah	Shawano Sub (CH 2)	(010 010)
	Yardmaster (CH 4)	(015 015)
	New London Spur (CH 1)	(045 045)
	West Yard Assignment (CH 5)	(049 049)
	Yard Channel (CH 6)	(064 064)
	Local Assignment (CH 7)	(076 076)
	Menasha Assignment (CH 8)	(085 085)
Manitowoc	Road Channel to Switch (CH 2)	(010 010)
Appleton	Yard Channel (CH 7)	(076 076)
Green Bay	Military Ave. North including ELS Main (CH 4)	(015 015)
	South Yard Switching Lead (CH 5)	(049 049)
	Industry Work in Swamp (CH 6)	(064 064)
	Yardmaster (CH 7)	(076 076)
	Luxemburg, Howard, Denmark & Kimberly Spurs (CH 3)	(079 079)
	North Yard Switching Lead (CH 8)	(085 085)

TERMINAL	FUNCTION/OPERATION	AAR CHANNEL/RADIO PRE-DIAL
Powers	Road Channel to Switch (CH 4)	(015 015)
Escanaba	Ore Dock Yard - Switching Operations (CH 2)	(010 010)
	Ore Dock Yard - Used to Switch When Zone is Activated	(045 045)
	Dock Operations	(052 052)
	Yard 6 - Switching Operations (CH 3)	(079 079)
	Dock Operations	(090 090)
Gladstone	Used to Switch When Zone is Activated (CH 2)	(010 010)
	Road Channel to Switch When Zone is Not Activated (CH 4)	(015 015)
Stevens Point	Yardmaster (CH 4)	(015 015)
	A Yard Switching Lead (CH 5)	(049 049)
	Roundhouse and Mechanical (CH 6)	(064 064)
	B Yard Switching Lead (CH 7)	(076 076)
	Plover/Uptown Mill/L56081 (CH 8)	(085 085)
	Mechanical	(054 054)
Wisconsin Rapids	Yardmaster (CH 4)	(015 015)
	Assignments outside of Yard (CH 3)	(079 079)
	North end Switching Assignments (CH 5)	(049 049)
	Mill Assignment (CH 2)	(010 010)
	Biron Mill Assignment (CH 6)	(064 064)
	Industrial Park and Nekoosa Industries (CH 7)	(076 076)
	South end Yard Assignments (CH 1)	(045 045)
Wausau	Yard Channel (CH 5)	(049 049)
	Yard Channel (CH 7)	(076 076)
Marshfield	Road Channel to Switch (CH 3)	(079 079)
Ladysmith	Road Channel to Switch (CH 3)	(079 079)
Stone Lake	Road Channel to Switch (CH 3)	(079 079)
New Brighton	Yard Channel	(010 010)
	MNNR Interchange	(030 030)
	BNSF Interchange	(070 070)
	New Brighton to Withrow (Yard)	(079 079)
	CP Interchange	(084 084)
	CP Interchange	(094 094)

TERMINAL	FUNCTION/OPERATION	AAR CHANNEL/RADIO PRE-DIAL
Superior/Pokegama	BNSF Superior – Road	(066 066)
	UP Superior	(071 071)
	BNSF Superior – Yard	(076 076)
	Pokegama Yard	(087 087)
	CP Superior	(094 094)
Proctor	Yardmaster	(008 008)
	Locomotive Department	(078 078)
	Switching Operations	(038 038)
Duluth	Switching Operations	(008 008)
	Dock Operations/Repeater	(014 082)
	Maintenance of Way/Structures	(038 038)
Two Harbors	Yard Operations	(008 008)
	Maintenance of Way/Structures	(038 038)
	Alternative Yard Channel	(078 078)
	Yard Channel/Repeater	(089 035)
Keenan	Yard Channel	(008 008)
	Road Channel to Switch	(016 016)
Minorca Yard	Proctor Yardmaster	(008 008)
	[Call for instructions to occupy or foul Minorca Yard tracks]	
Ranier	Road Channel to Switch - American Crews	(050 050)
	To Contact Canadian Crews	(087 087)

Block/Intermediate & Interlocking/Absolute Route Signals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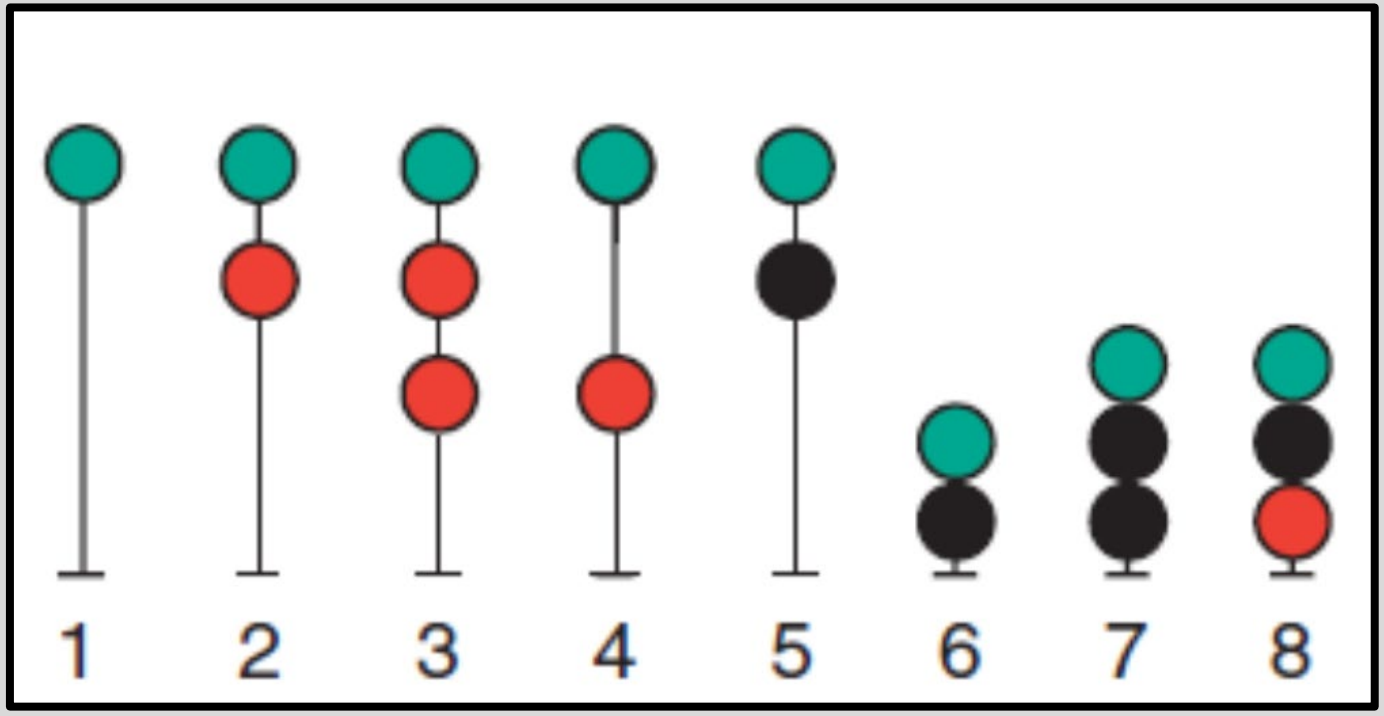
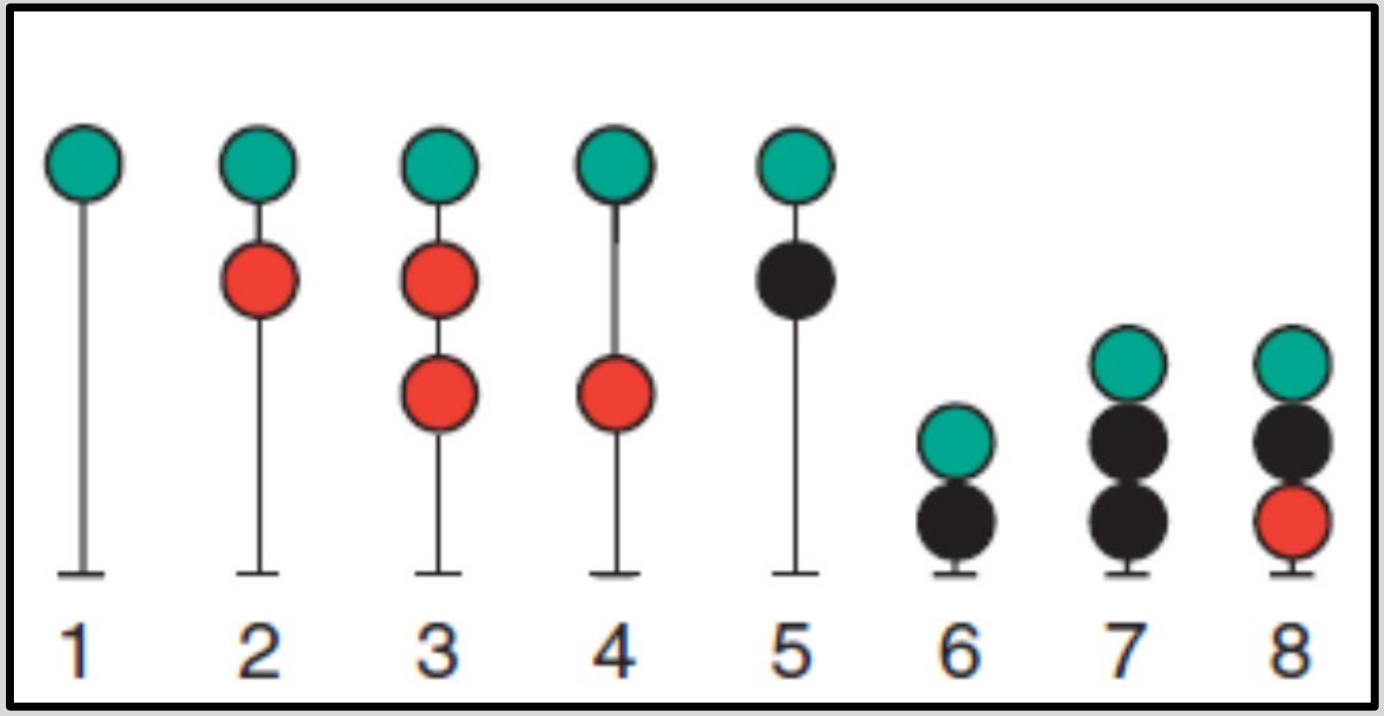
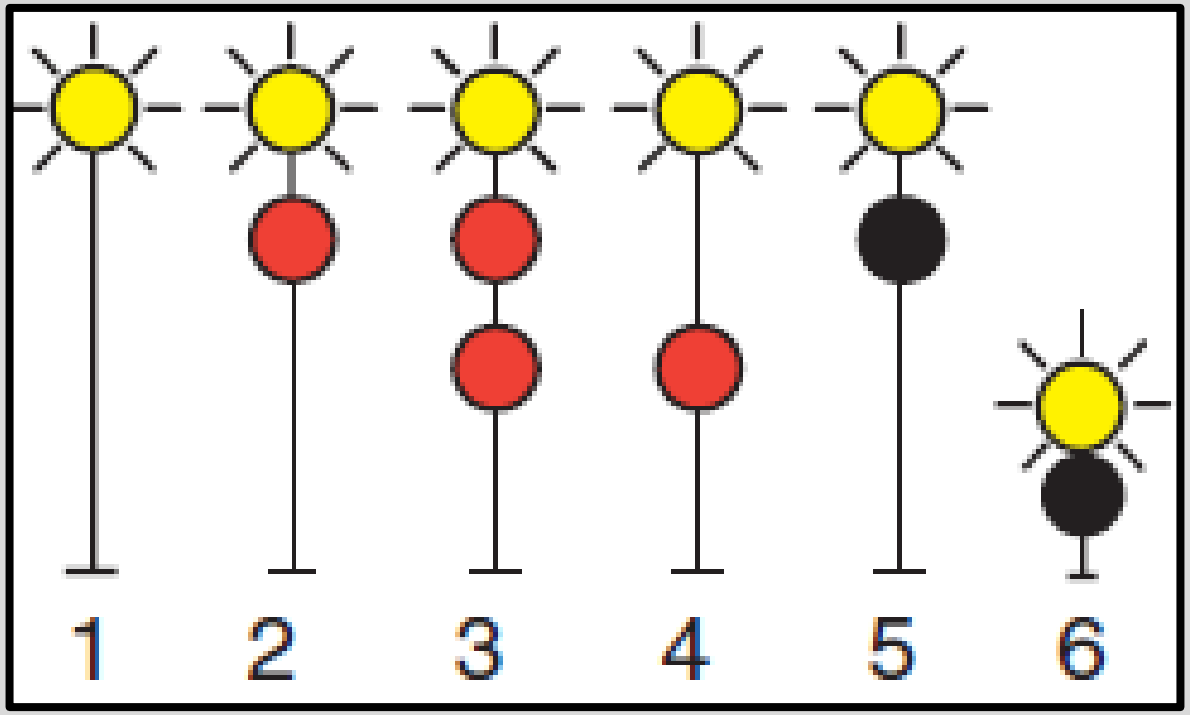


803. Clear



803. Clear

Proceed.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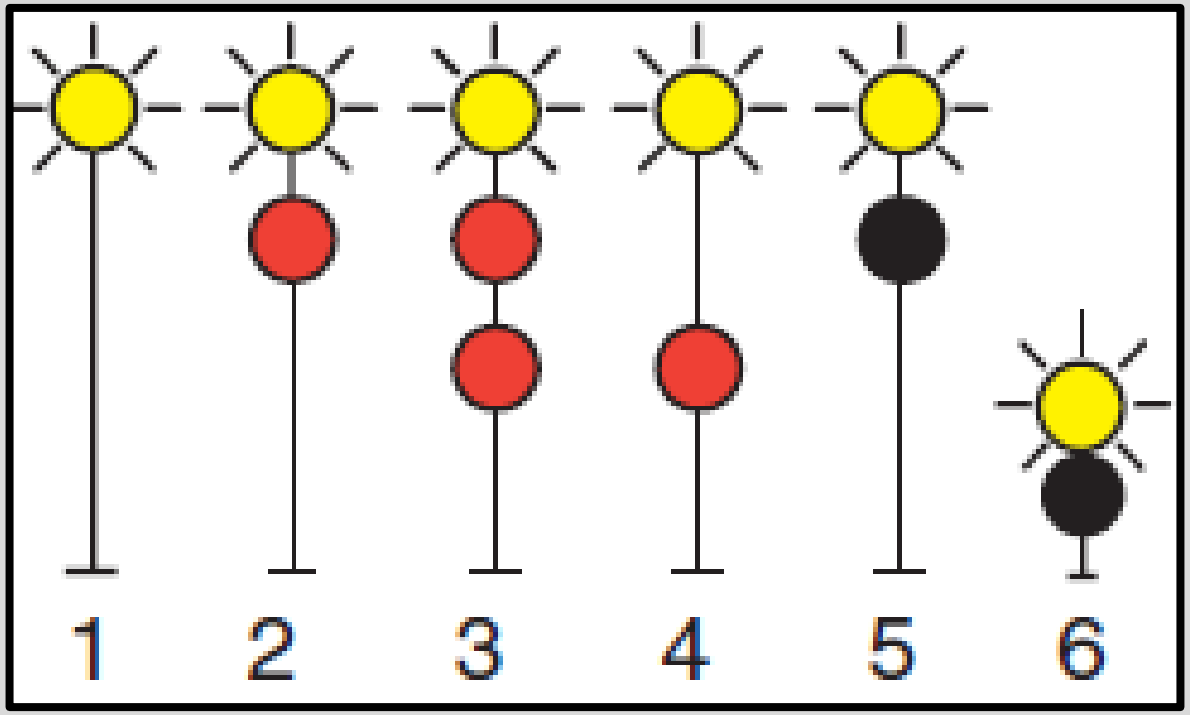
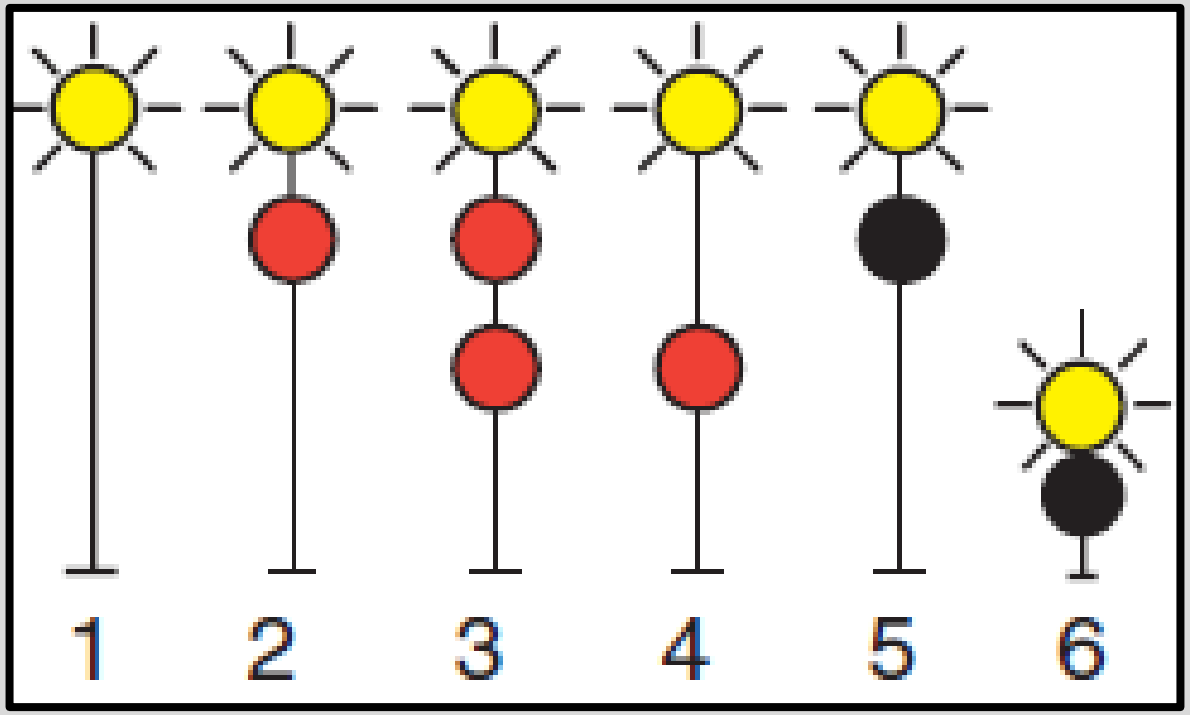
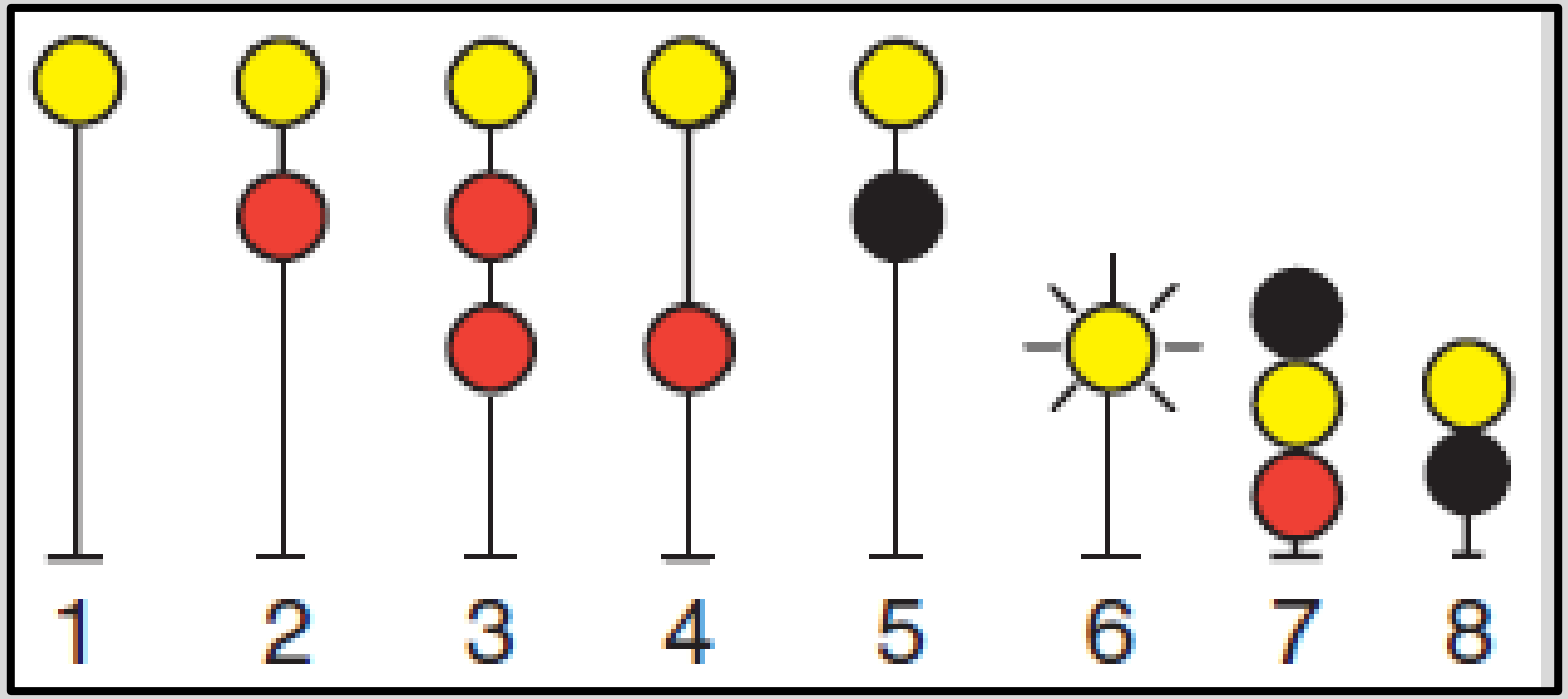


804. Advance Approach



804. Advance Approach

Proceed prepared to stop at second signal.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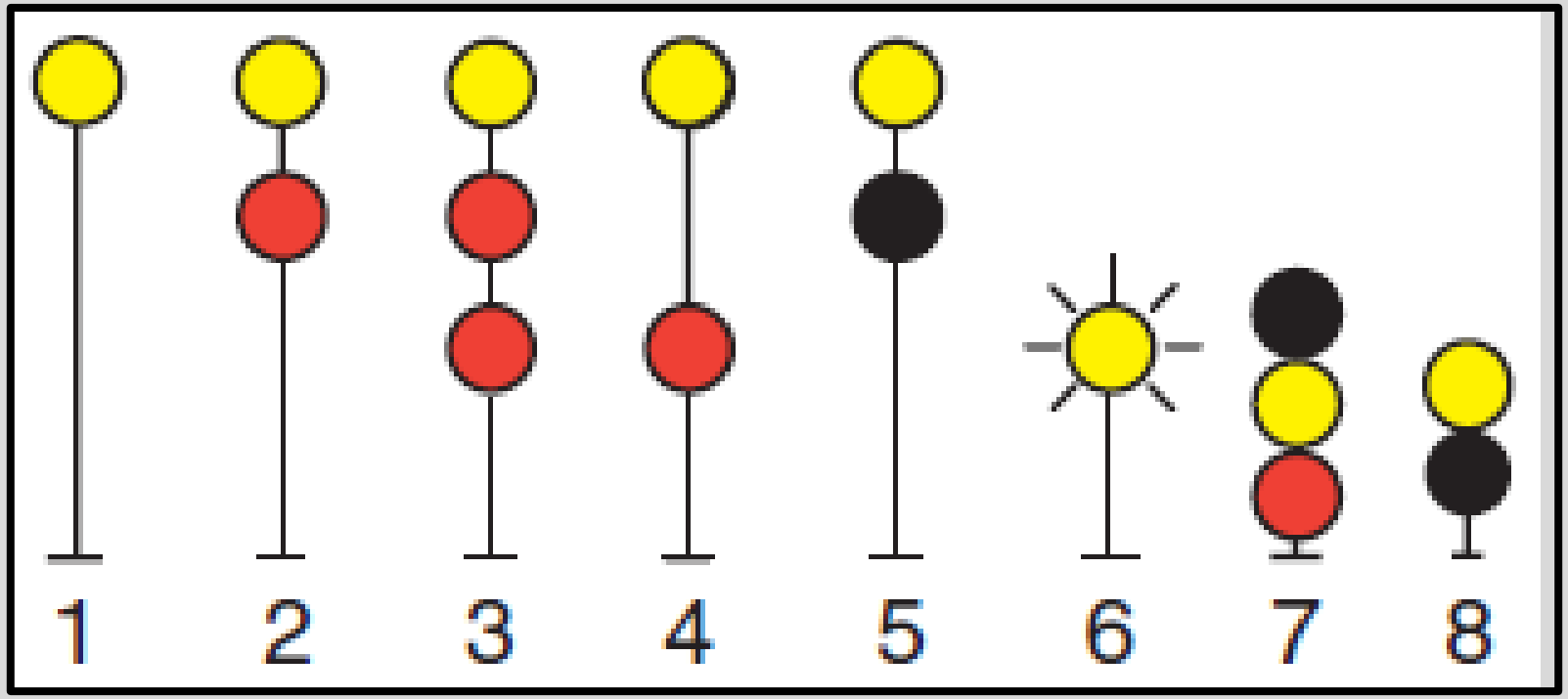
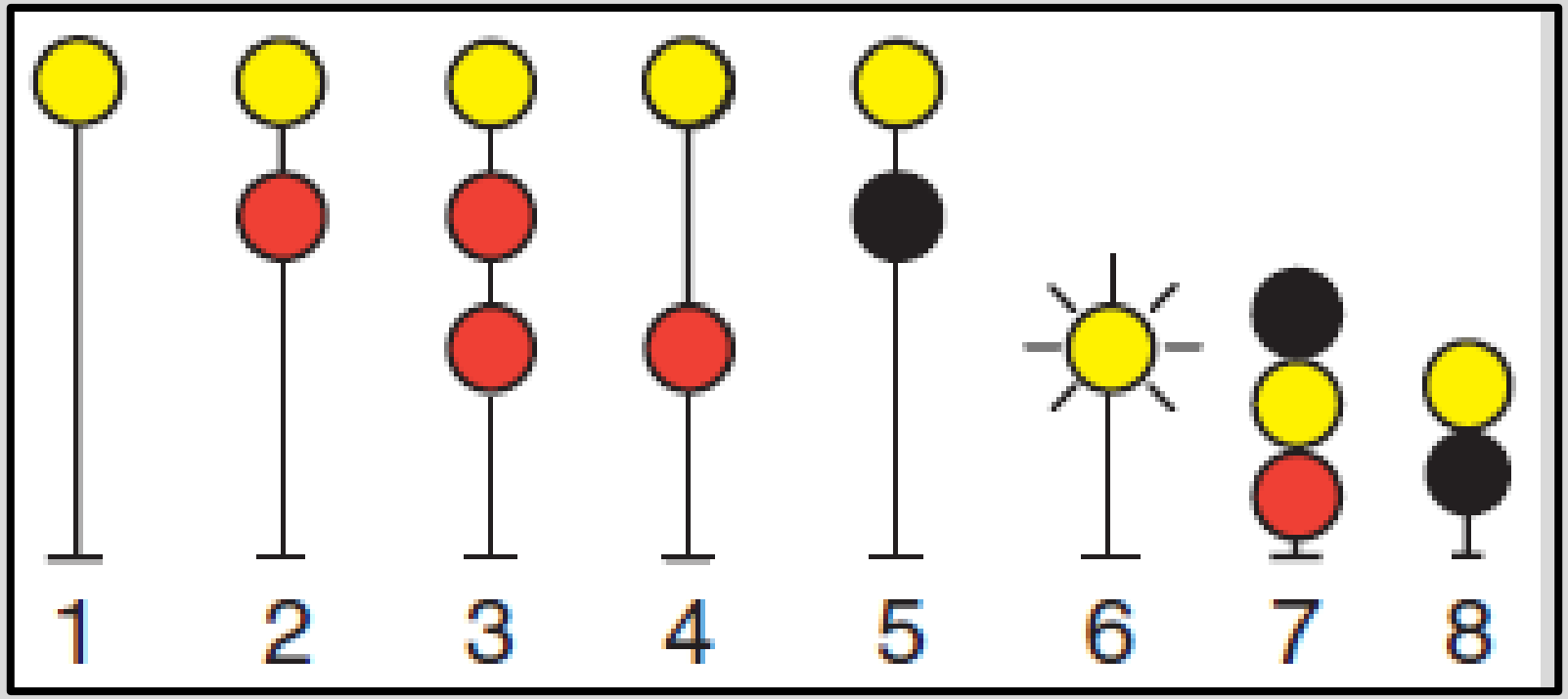
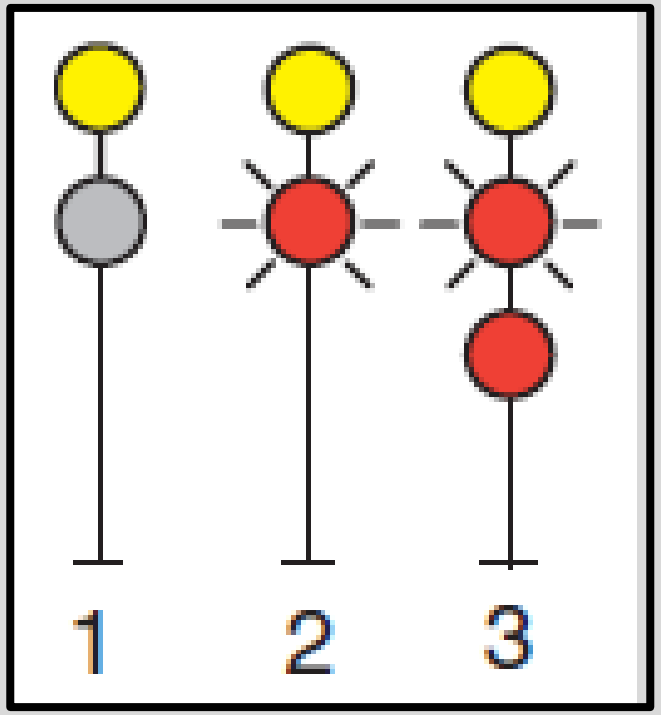


805. Approach



805. Approach

Proceed prepared to stop at next signal.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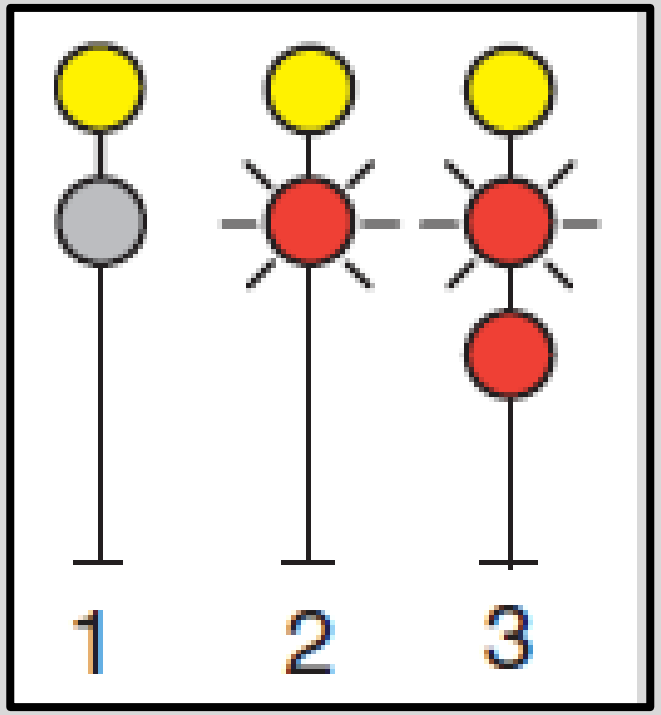
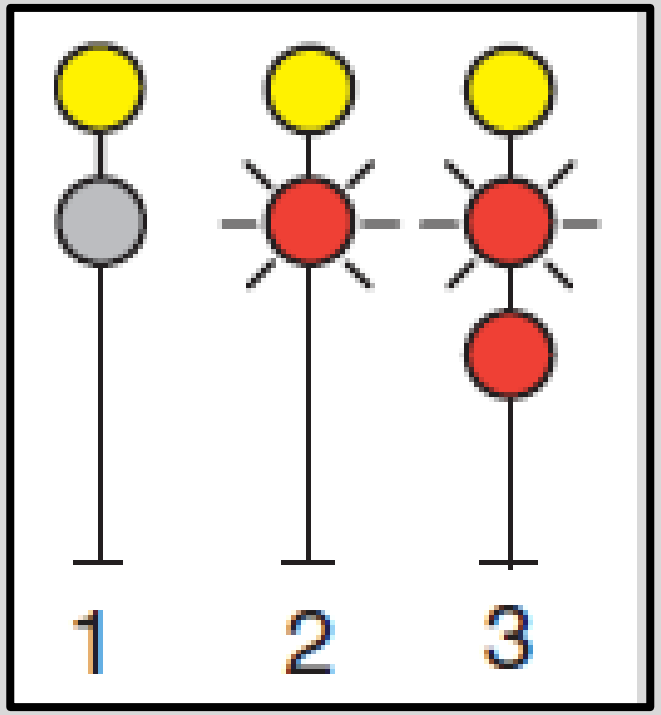
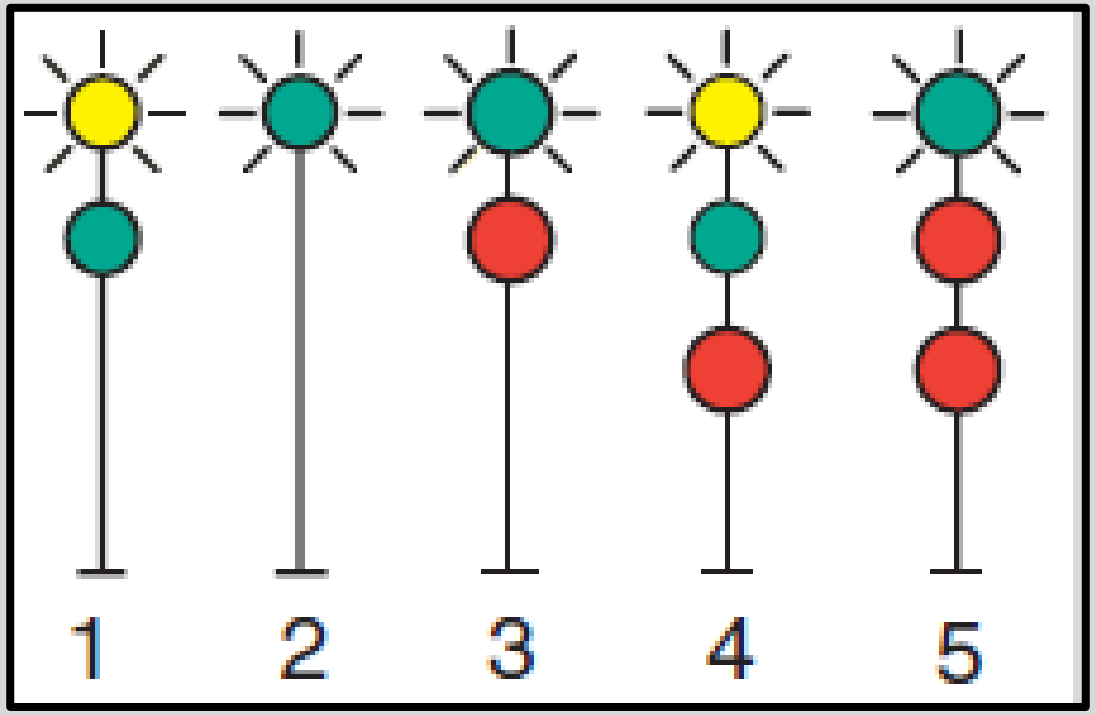


806. Approach Restricting



806. Approach Restricting

Proceed prepared to pass next signal at restricted speed.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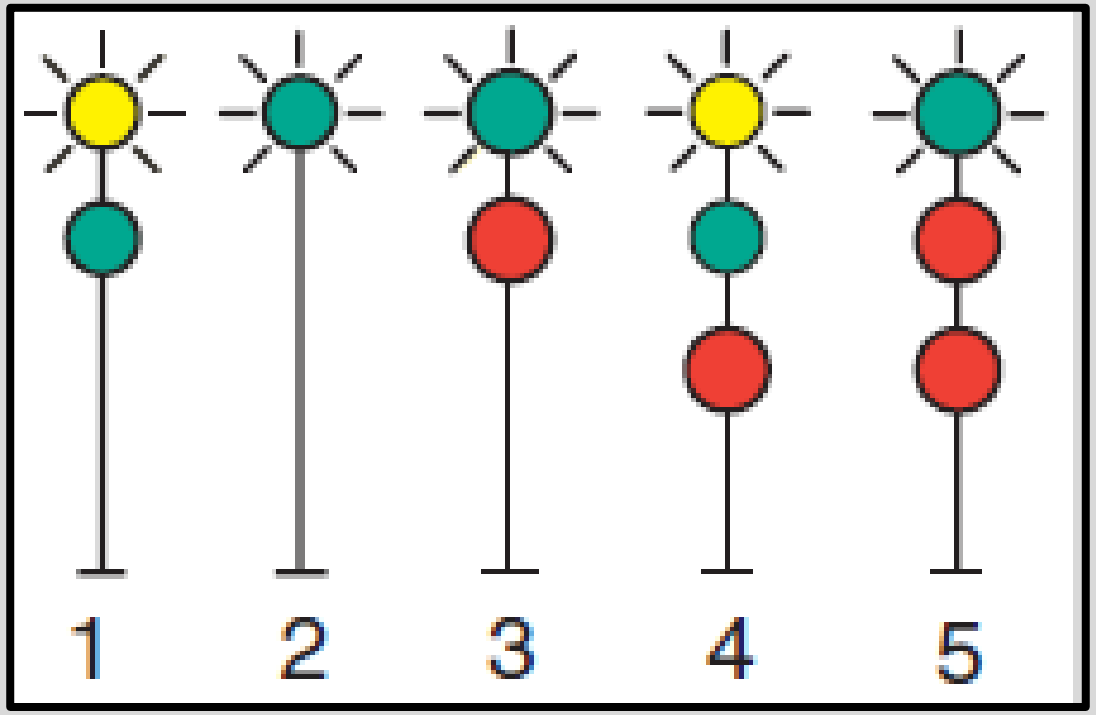
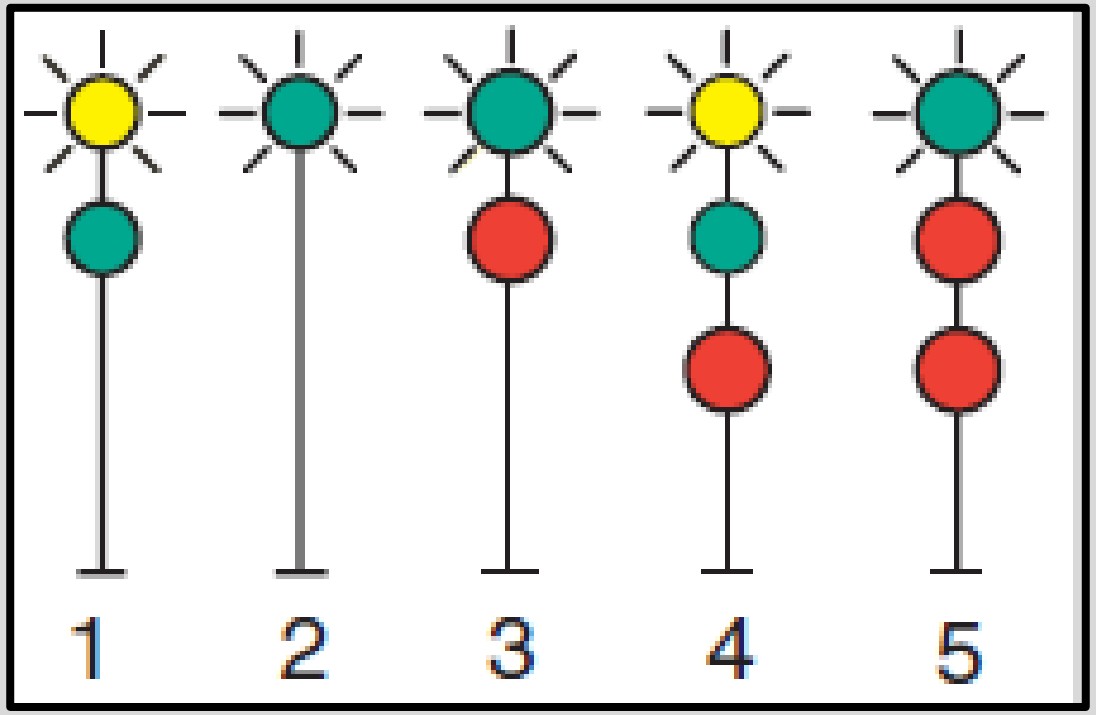
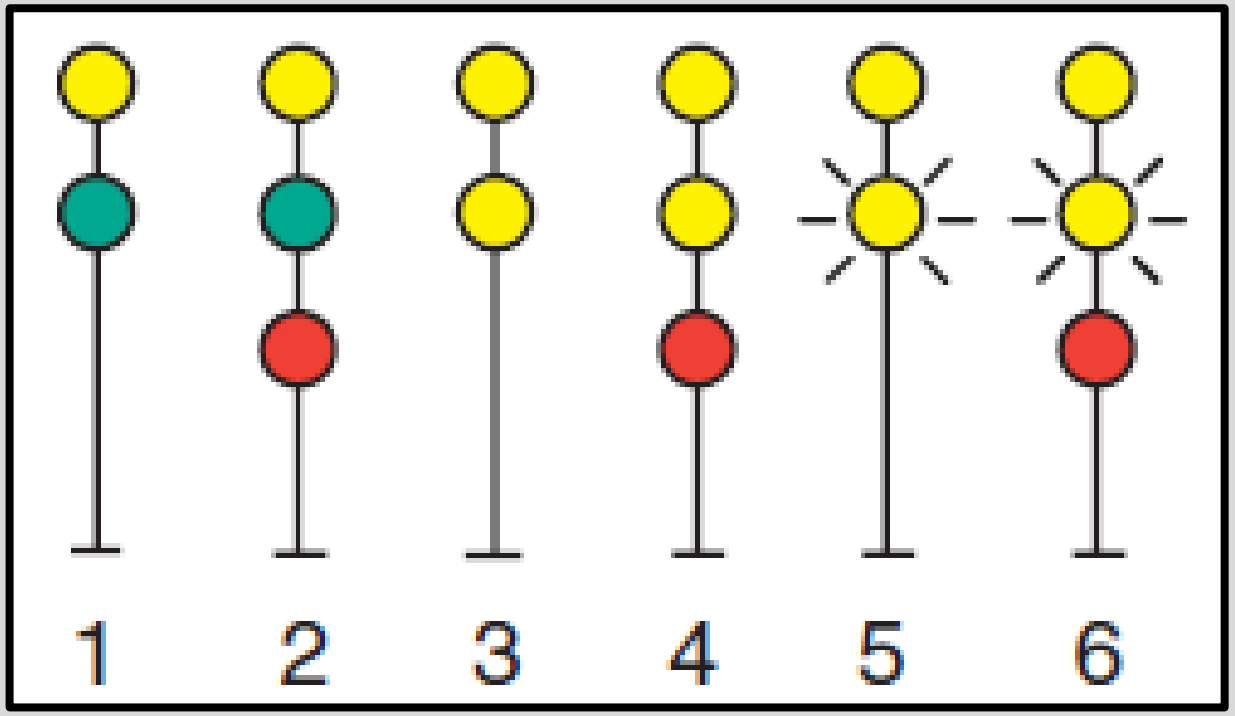


807. Advance Approach Diverging



807. Advance Approach Diverging

Proceed prepared to enter diverging route at second signal at prescribed speed.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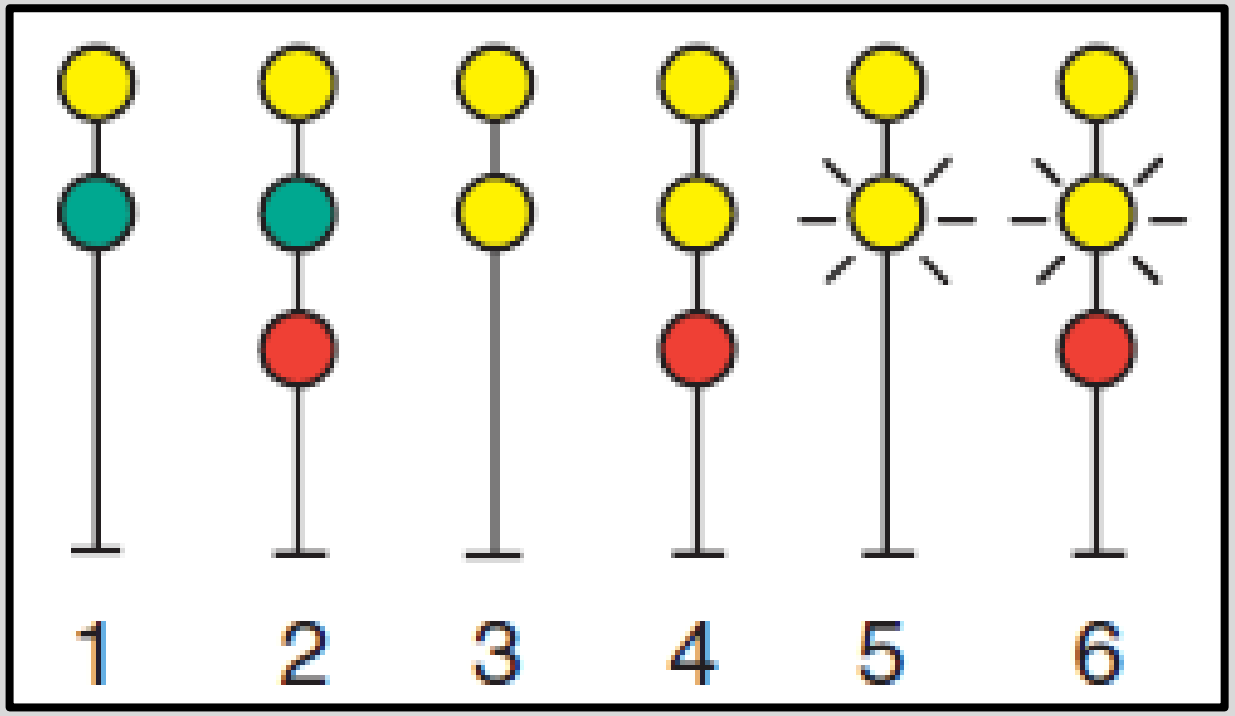
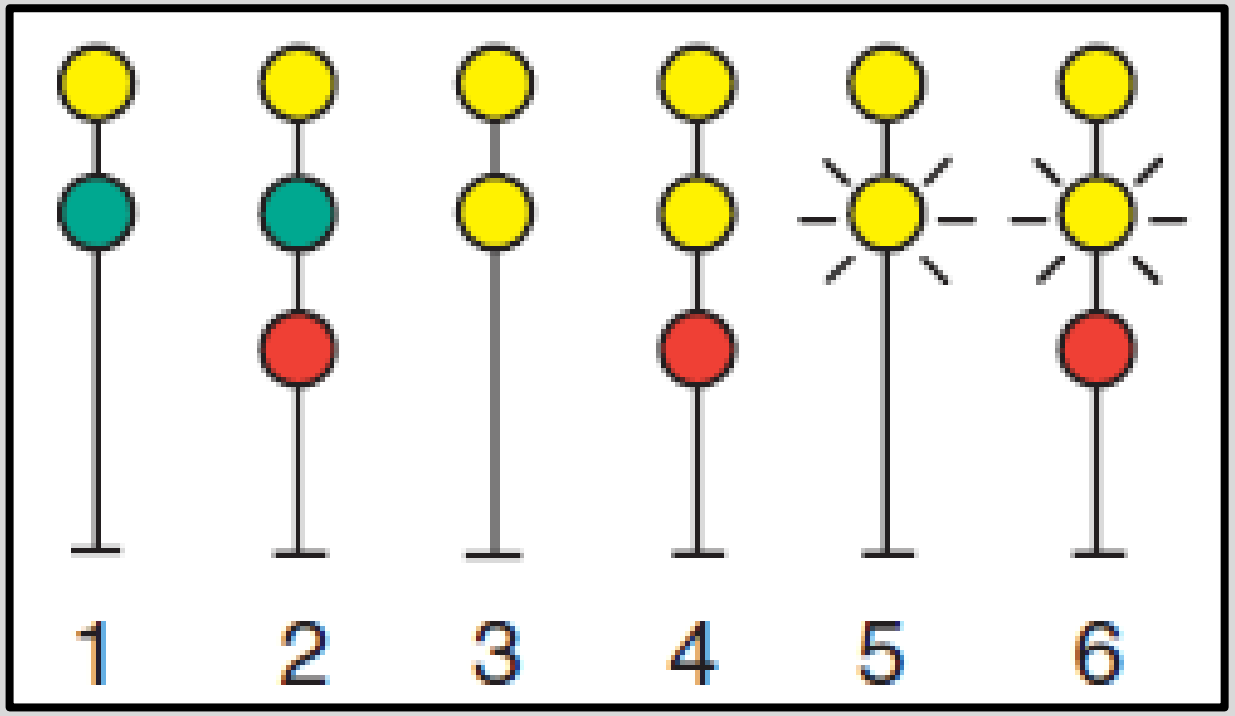


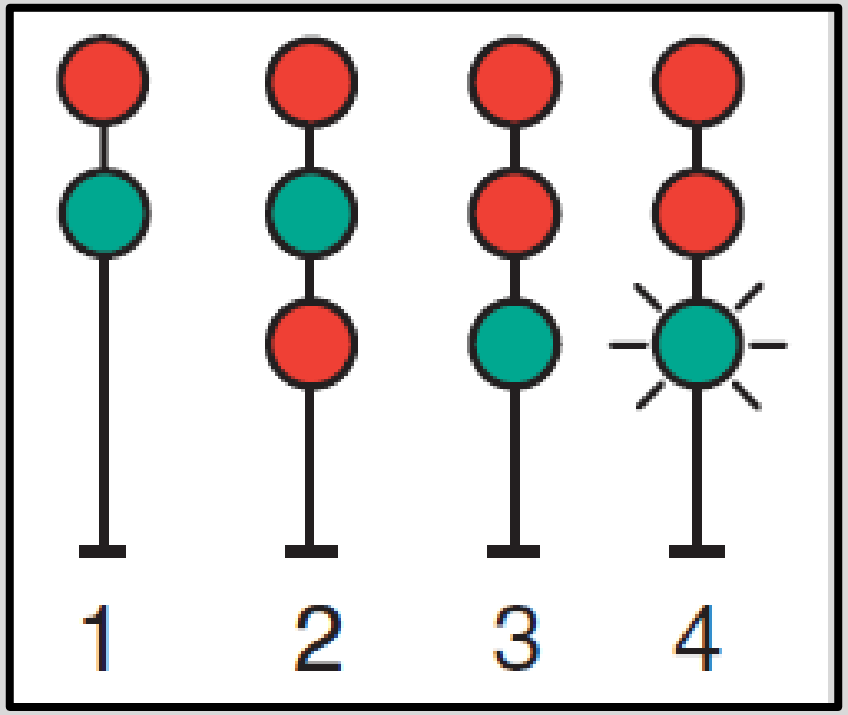
808. Approach Diverging



808. Approach Diverging

Proceed prepared to enter diverging route at next signal at prescribed speed.

Proceed prepared to stop at second signal.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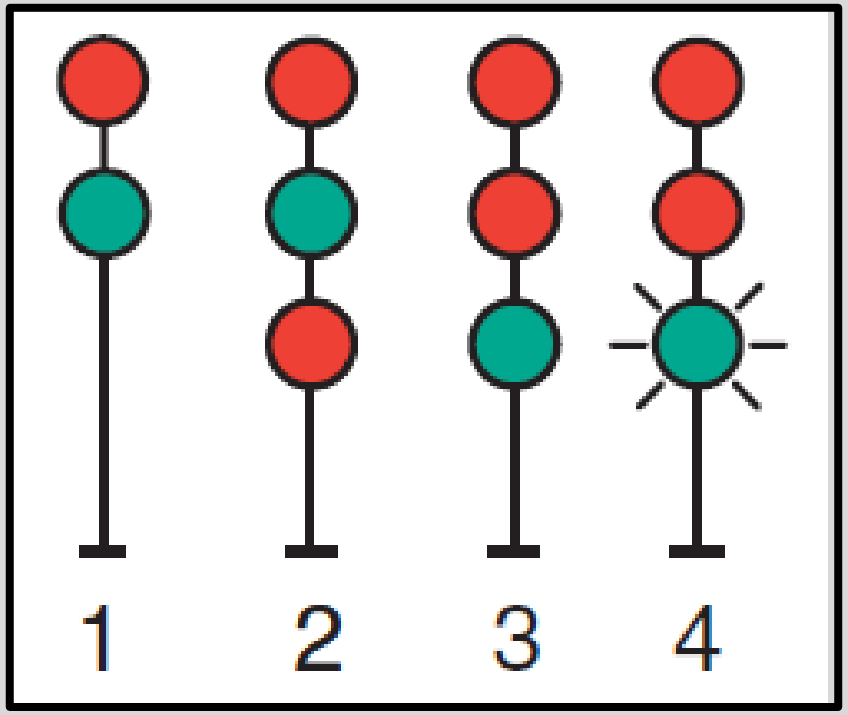
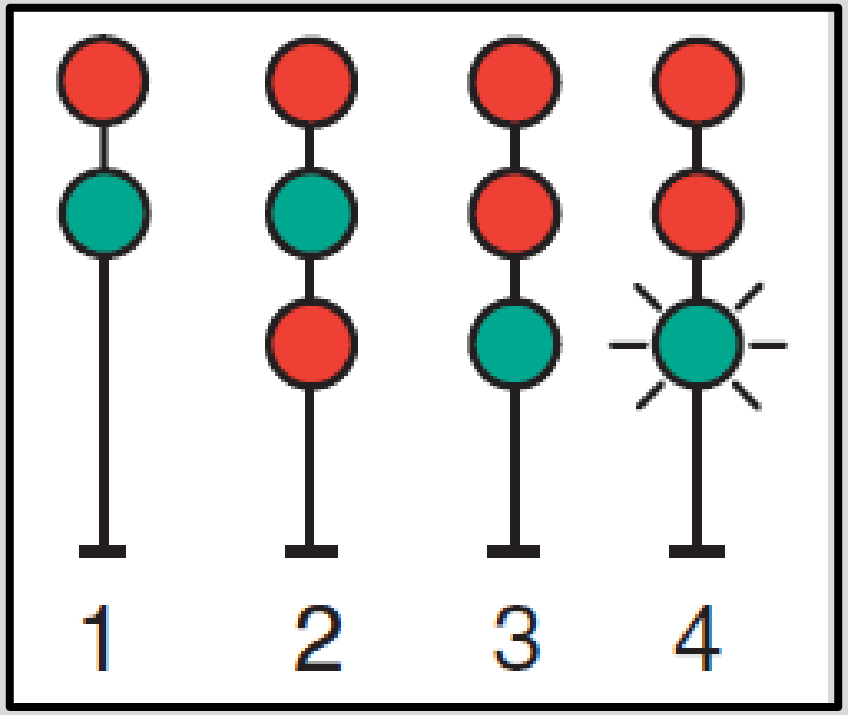
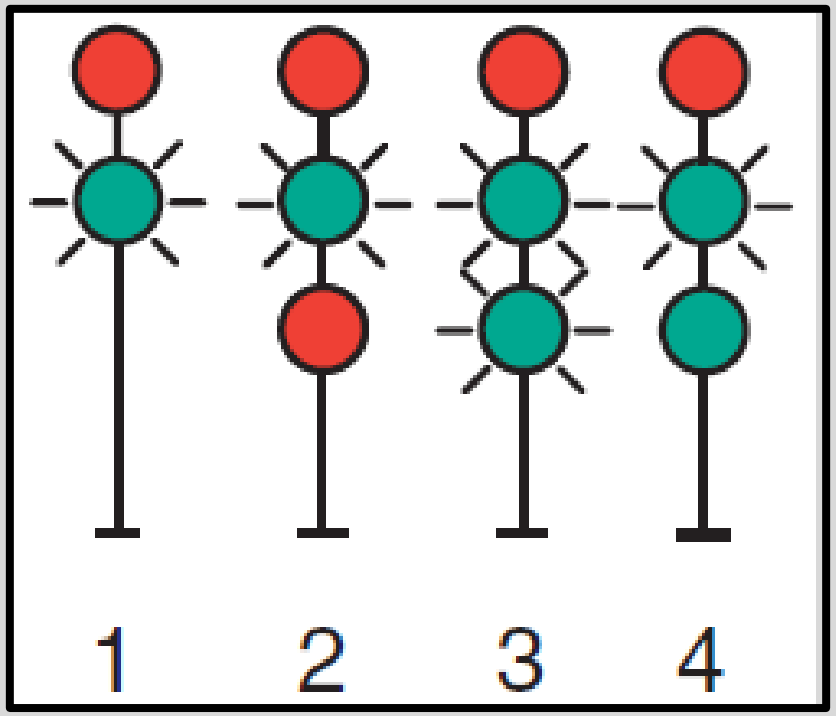


809. Diverging Clear



809. Diverging Clear

Proceed on diverging route
at prescribed speed.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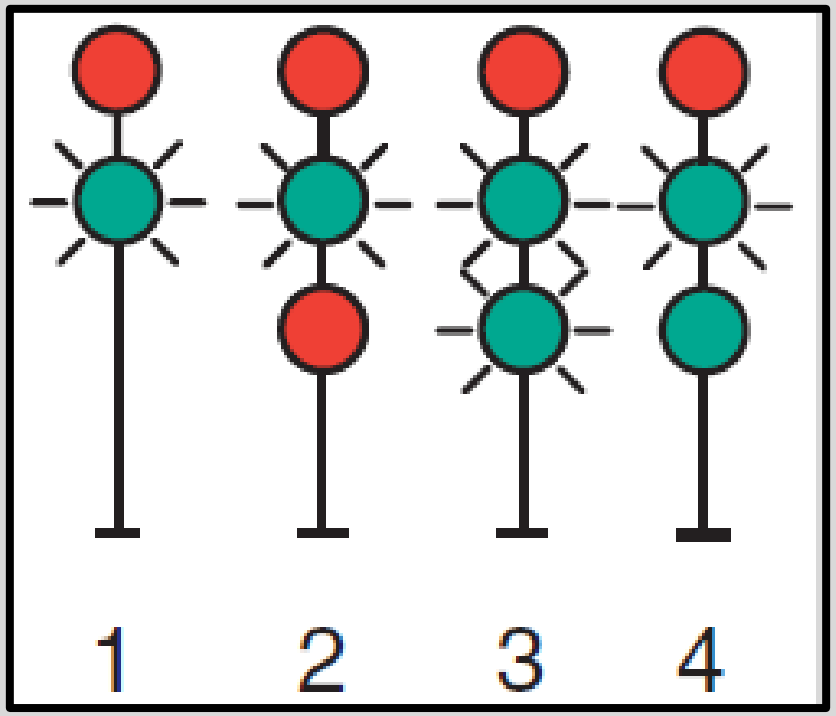
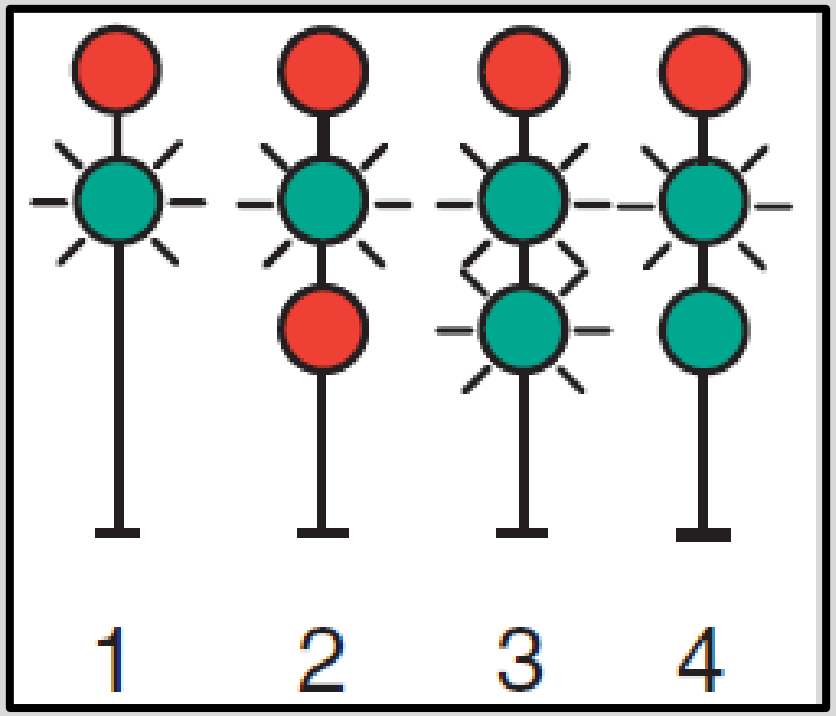
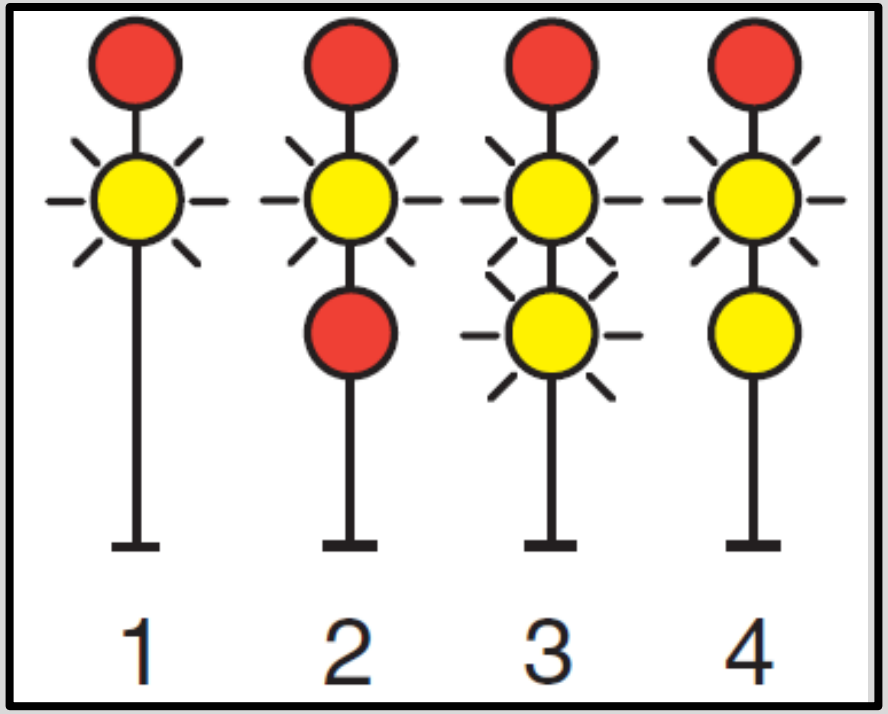


810. Diverging Clear Approach Diverging



810. Diverging Clear Approach Diverging

Proceed on diverging route at prescribed speed prepared to enter diverging route at next signal at prescribed speed. Proceed prepared to stop at second signal.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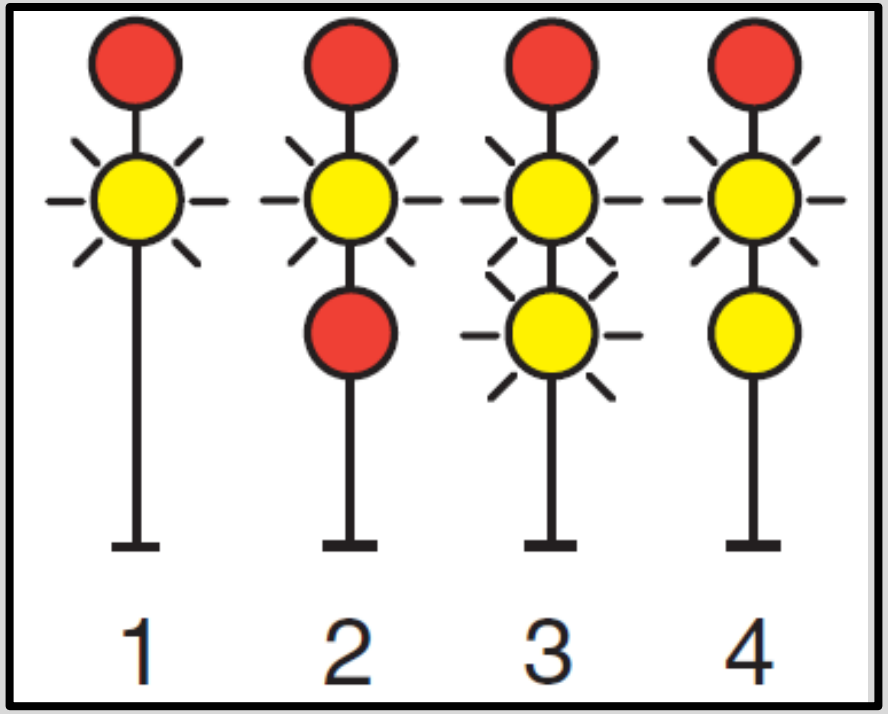
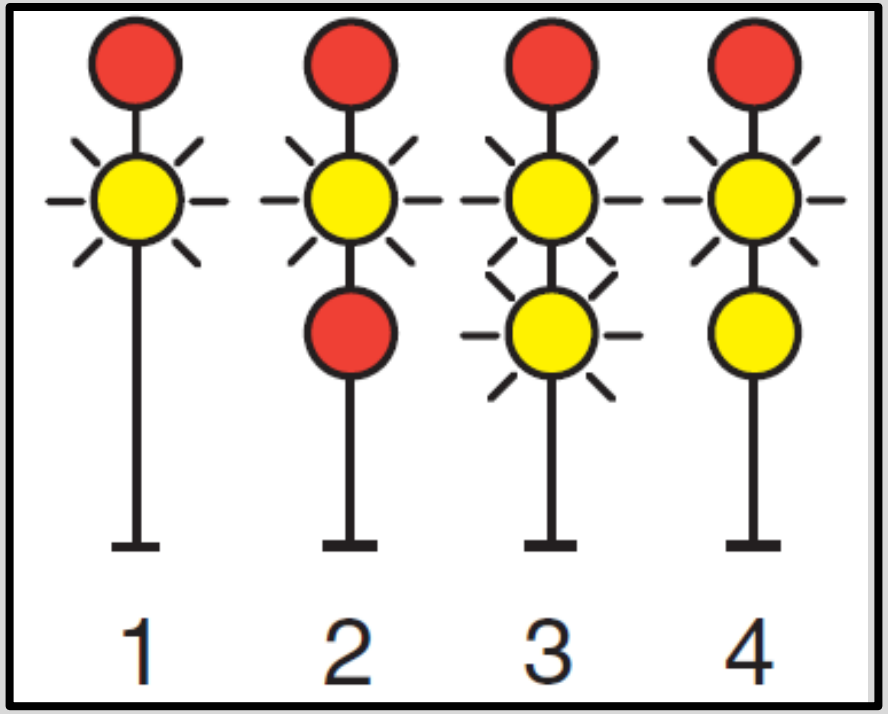
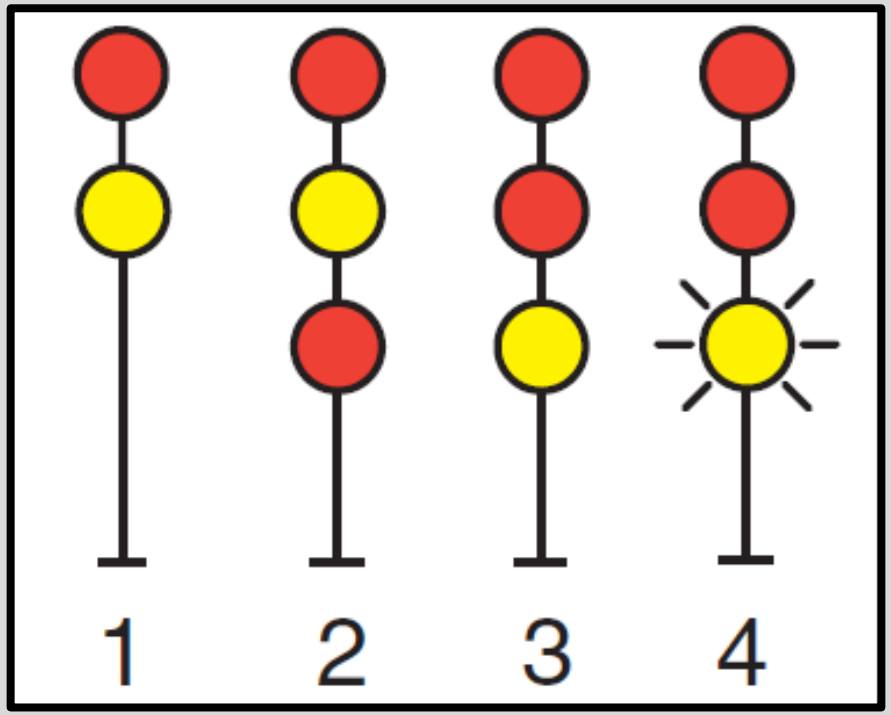


811. Diverging Advance Approach



811. Diverging Advance Approach

Proceed on diverging route at prescribed speed prepared to stop at second signal.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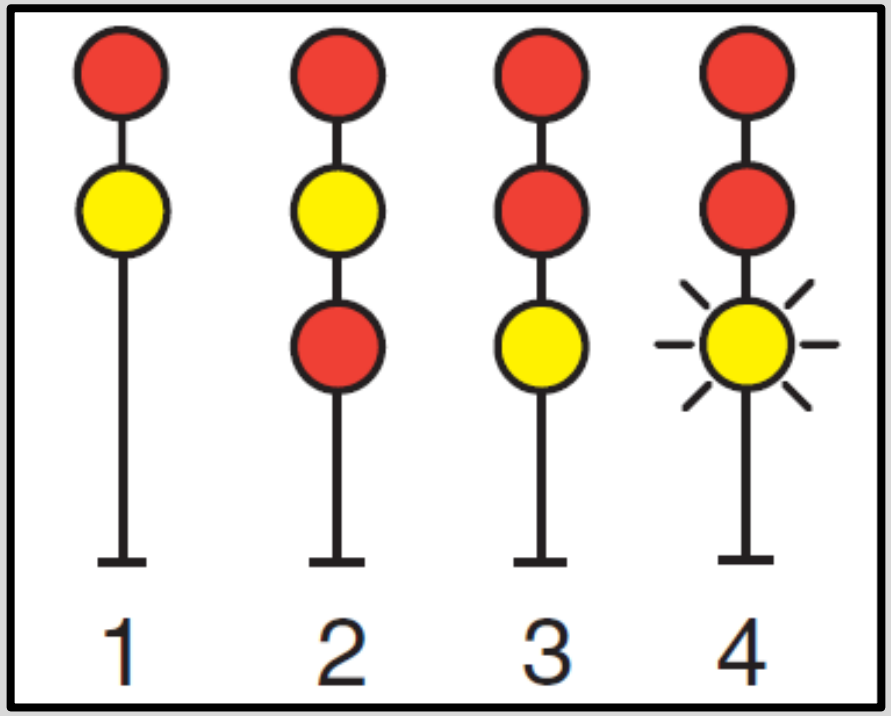
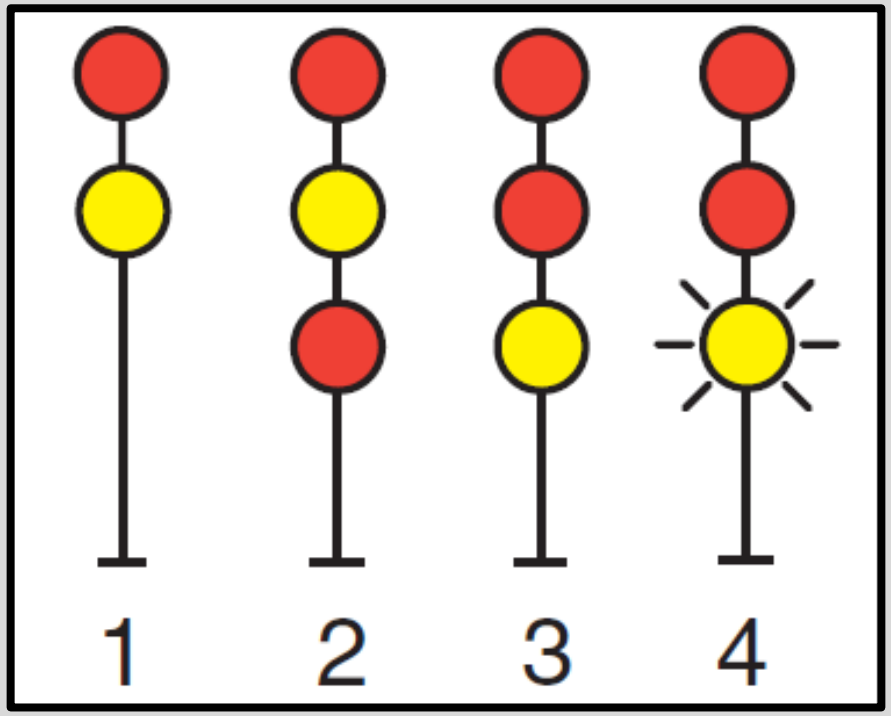
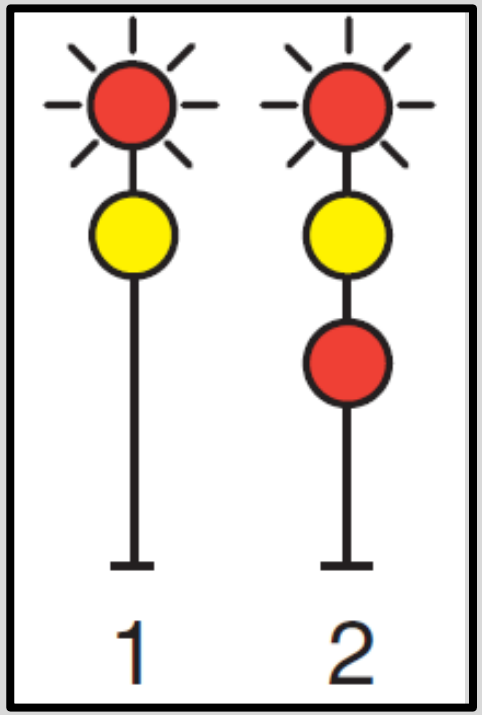


812. Diverging Approach



812. Diverging Approach

Proceed on diverging route at prescribed speed prepared to stop at next signal.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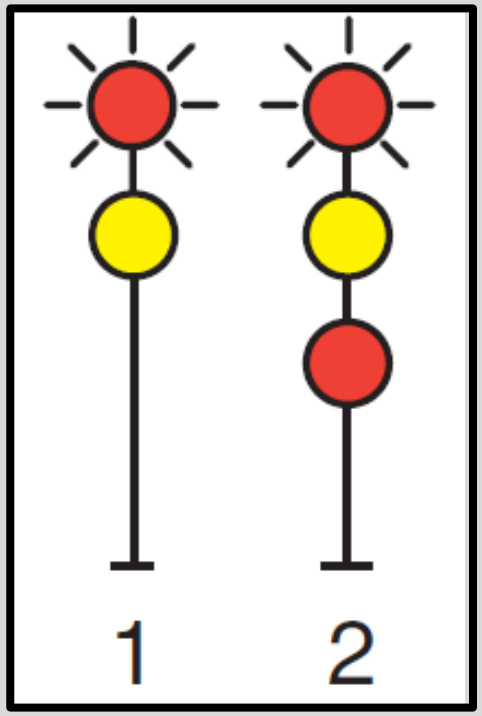
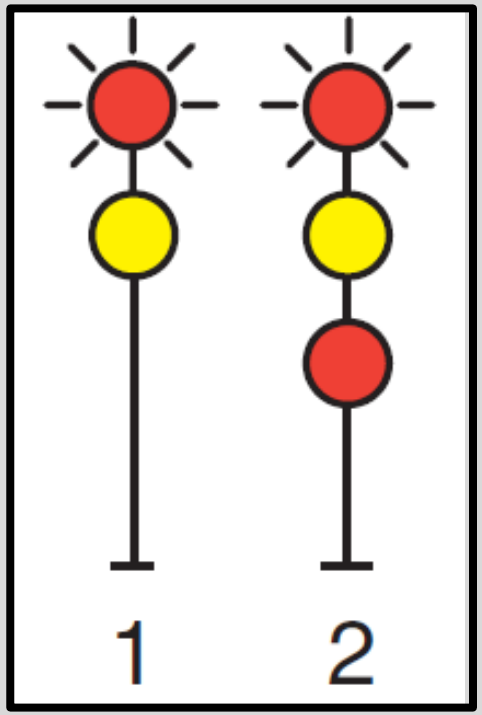
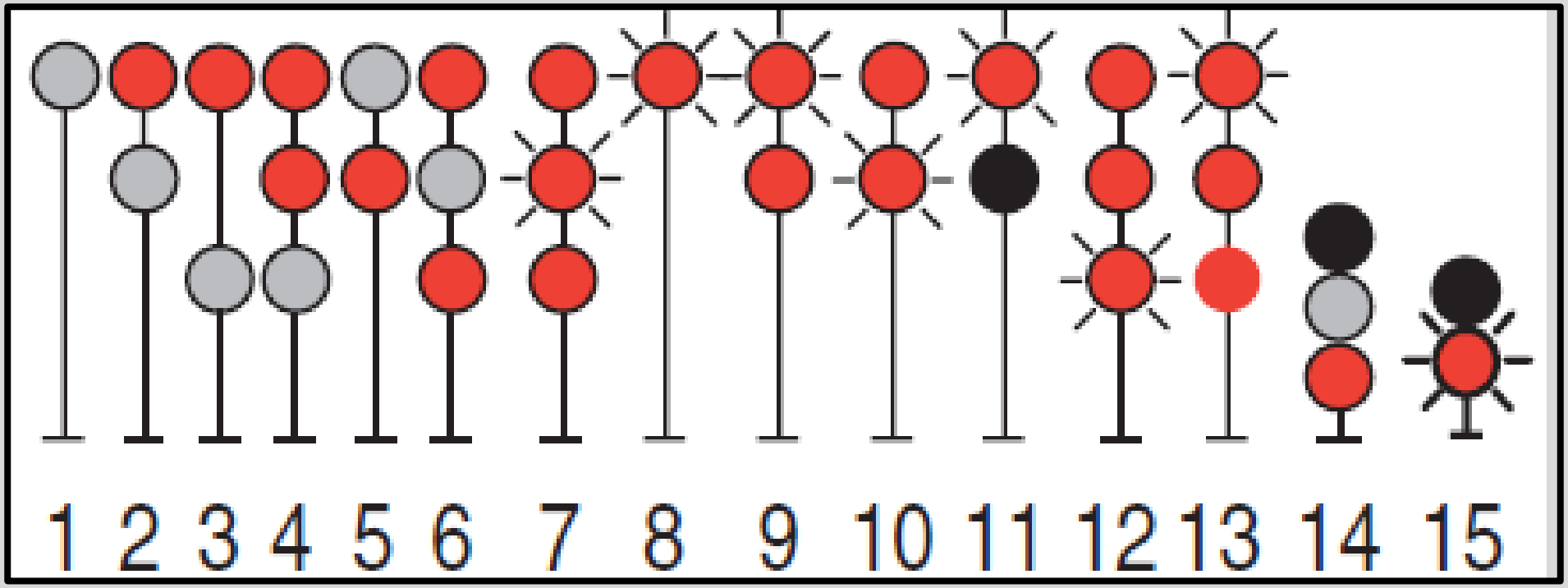


813. Diverging Approach Restricting



813. Diverging Approach Restricting

Proceed on diverging route at prescribed speed prepared to pass next signal at restricted speed.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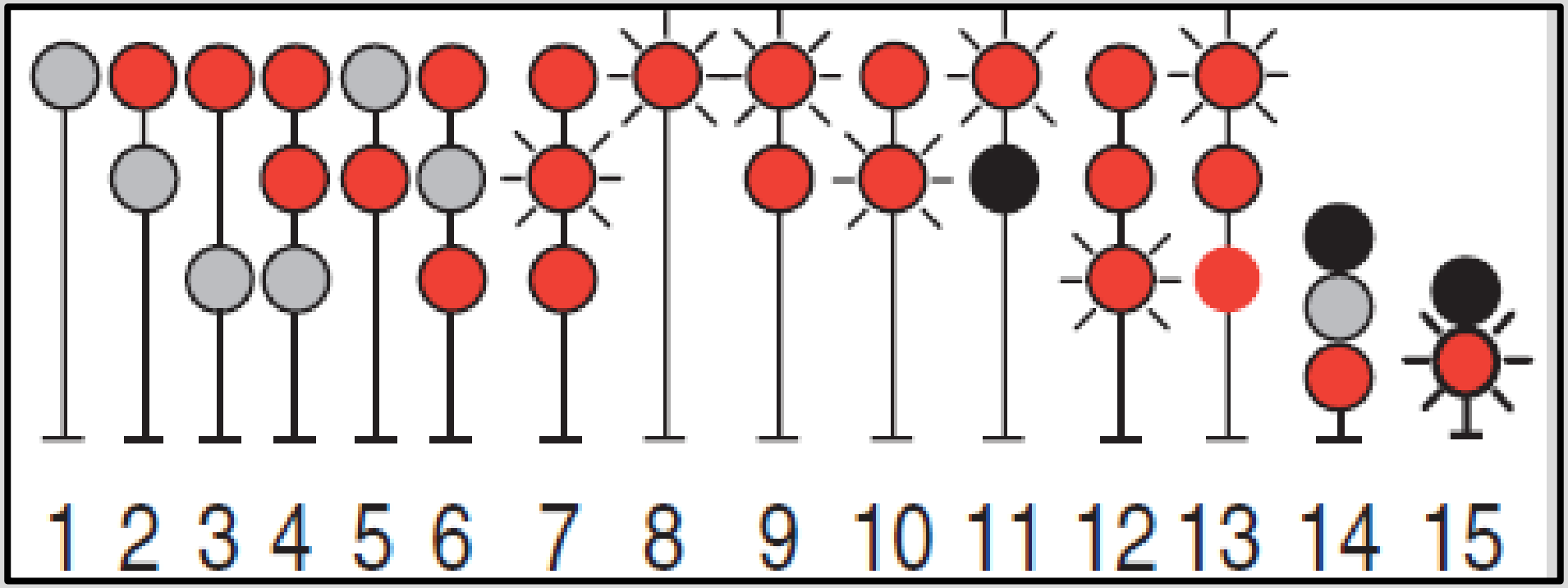
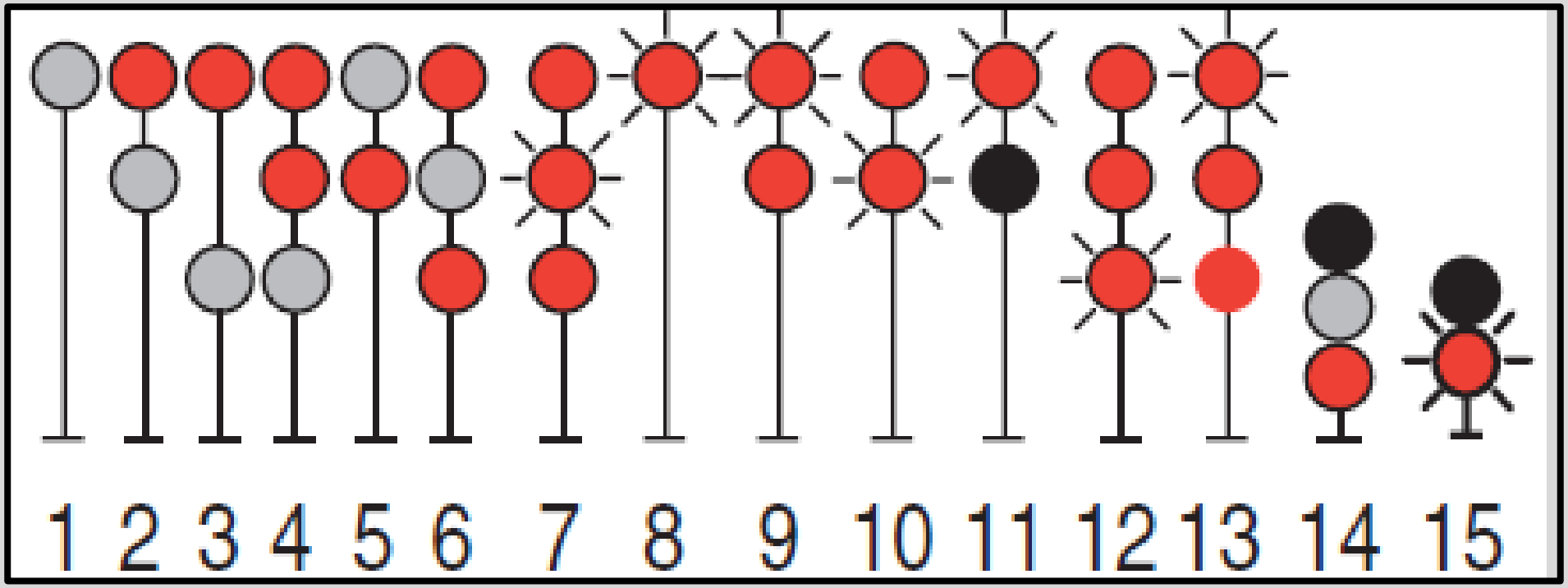
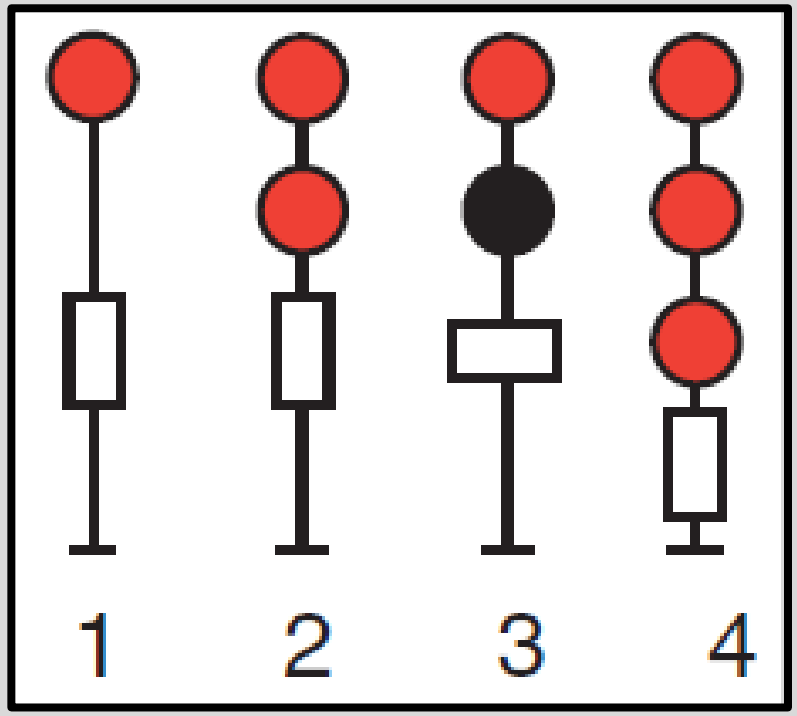


814. Restricting



814. Restricting

Proceed at restricted speed.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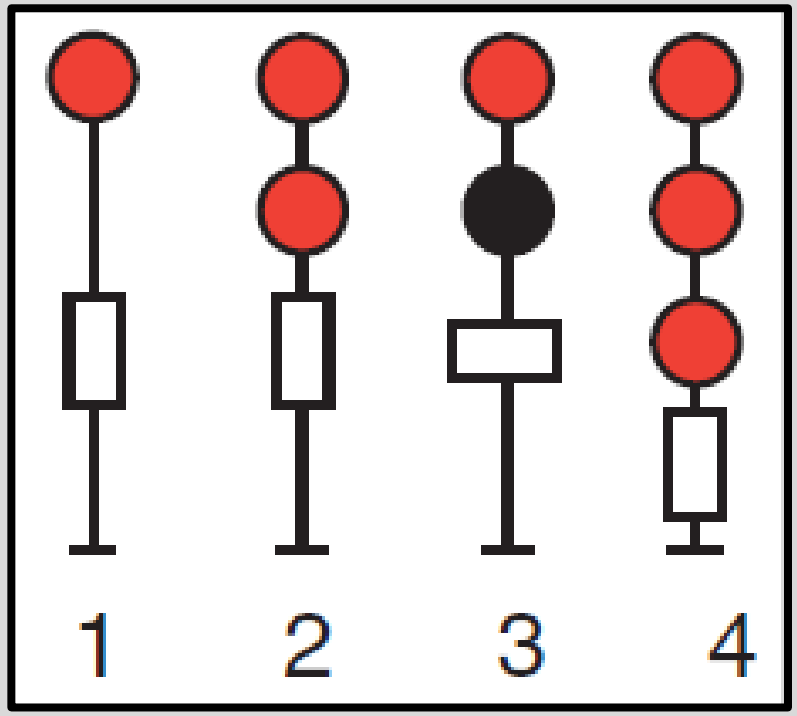
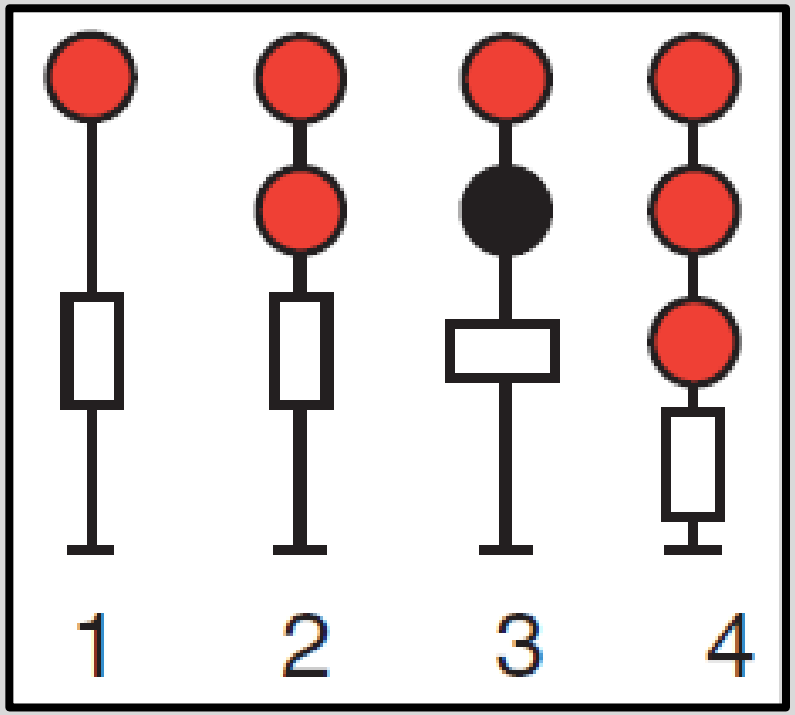
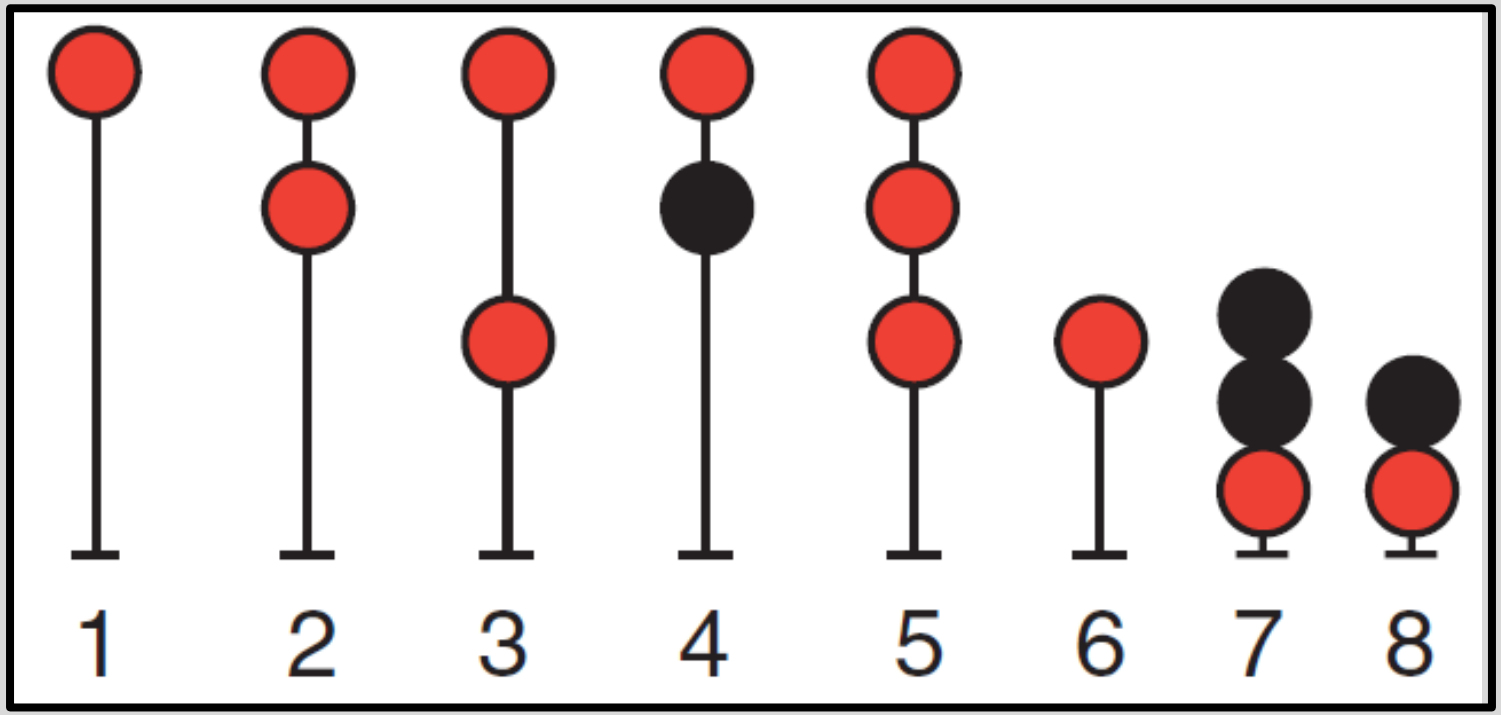


815. Restricted Proceed



815. Restricted Proceed

Proceed at restricted speed.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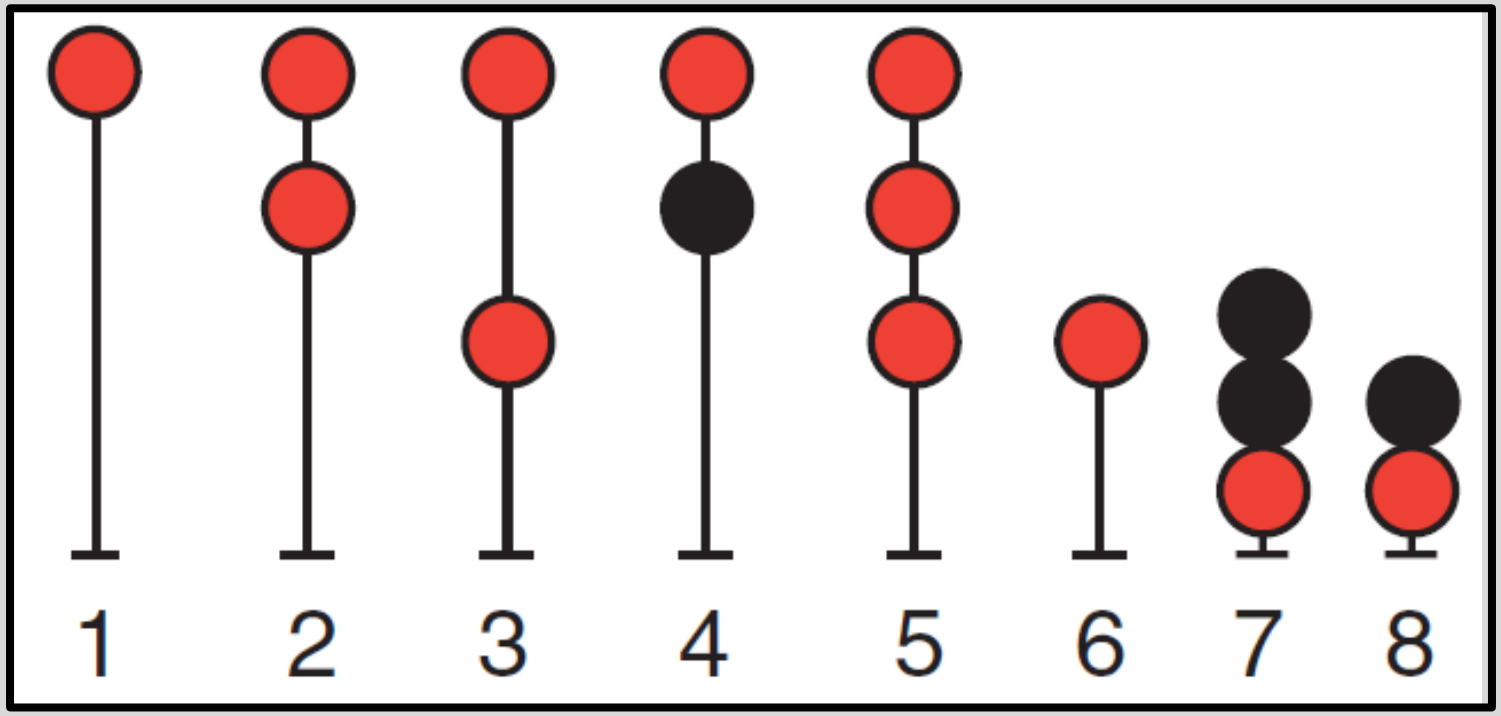
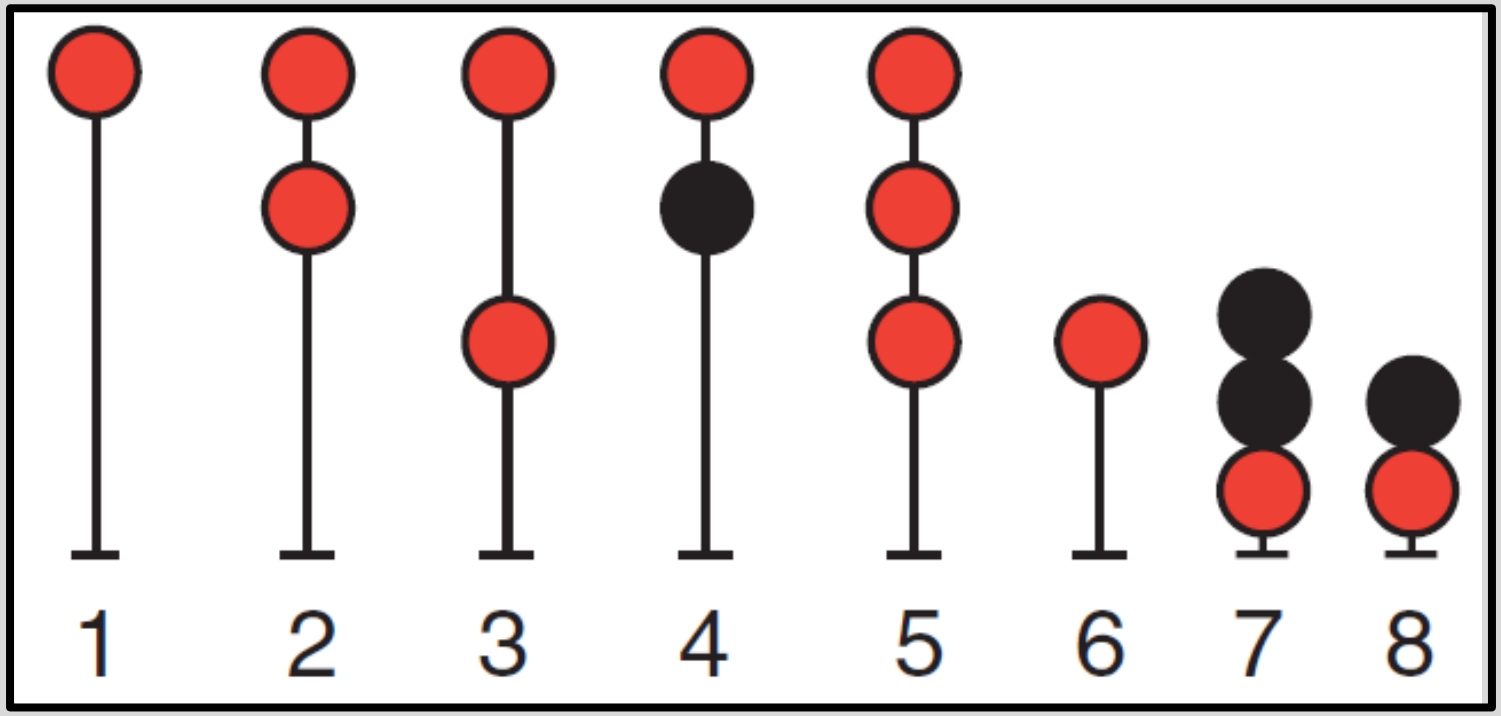


816. Stop

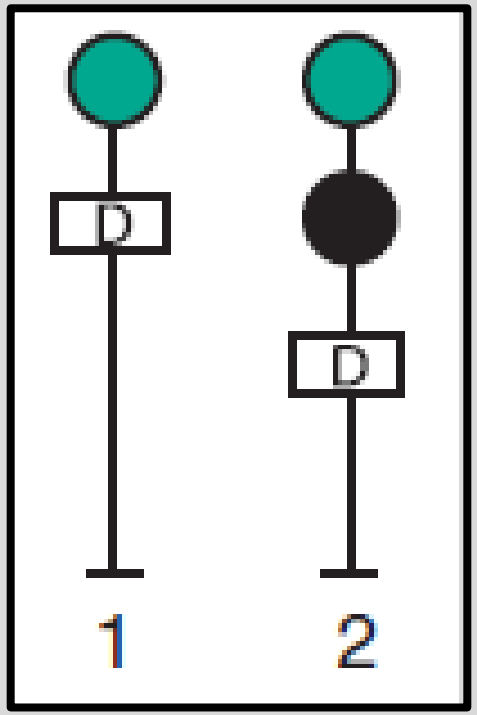


816. Stop

Stop.

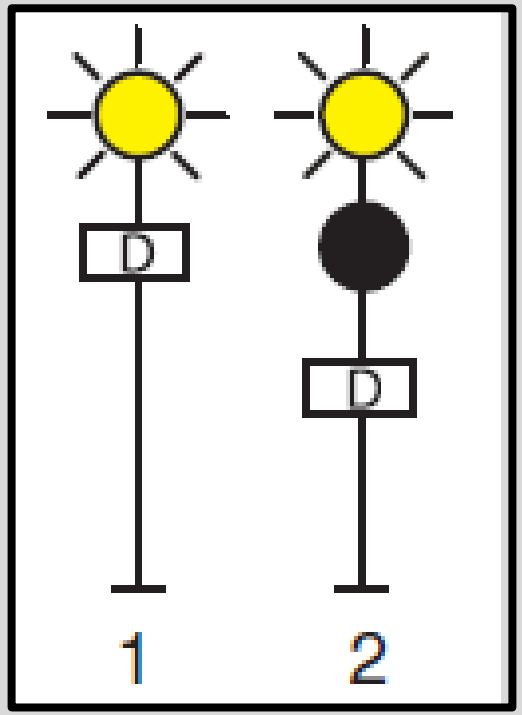
Distant Signals

(D attached to mast)



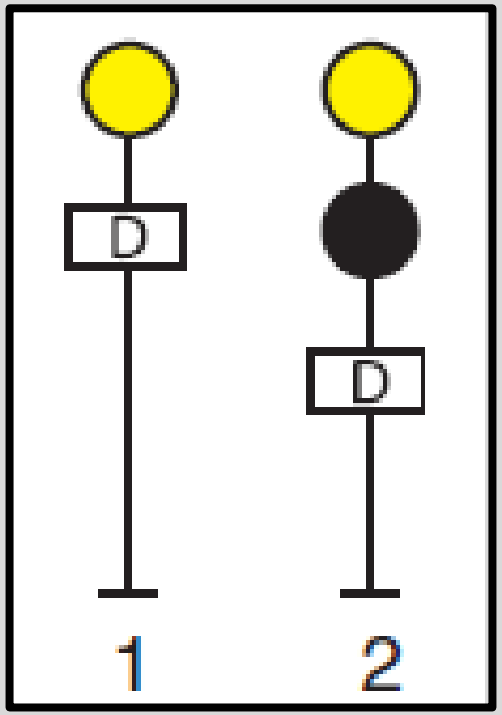
845. Distant Signal Clear

Proceed.



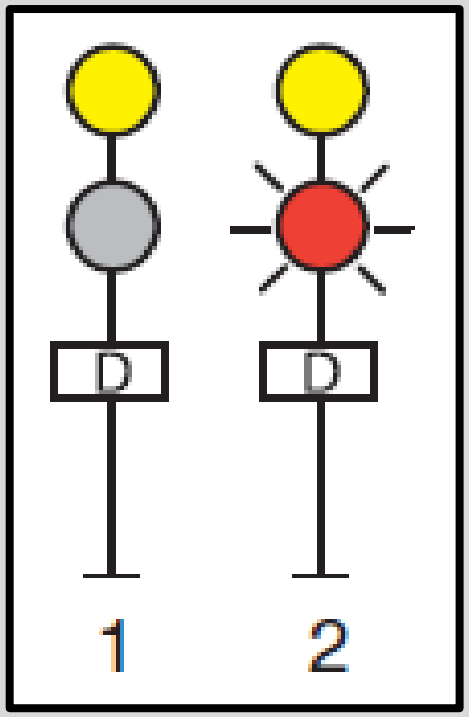
846. Distant Signal Advance Approach

Proceed prepared to stop at second signal.



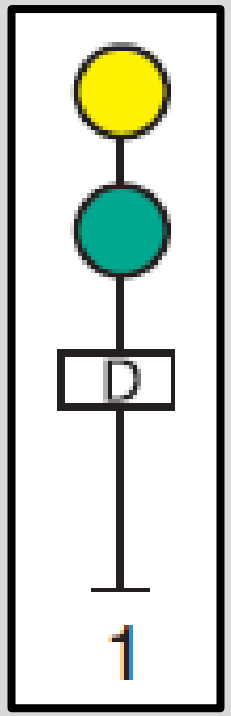
847. Distant Signal Approach

Proceed prepared to stop at next signal.



848. Distant Signal Approach Restricting

Proceed prepared to pass next signal
at restricted speed.



849. Distant Signal Approach Diverging

Proceed prepared to enter diverging route at next signal at prescribed speed. Proceed prepared to stop at second signal.