SECTION 3
TRAIN OPERATIONS

Version: 2.0

Issued: July 2016

Document control

Revision	Date of Approval	Summary of change
1.0	18/10/11	For publication
2.0	8/7/16	General review for currency

Summary of changes from previous version

Section	Summary of change

AMALGAMATION OF TRAINS

Two trains may be amalgamated to form one longer train for operational reasons.

If two (2) trains are amalgamated with all the locomotives marshalled at the front of the train, this is considered to be a normal train and no special conditions shall apply. All standard marshalling conditions and train path conditions however, will apply.

If the trains are amalgamated with the locomotives on the second train coupled to the rear vehicle of the leading train, the following conditions shall apply:

- The train driver of the leading train must have full control of the automatic air brake throughout the both trains including the locomotive(s) on the second train and shall direct the driver of the second train when to apply and reduce power.
- All vehicles published in **Section 10 Locomotive and Rolling Stock Data Pages** may be included in an amalgamated train with the exception that 4 wheel vehicles and vehicles with non-automatic couplers must not be marshalled in the leading train.
- Communication between the crew on each train must comply with current Safeworking requirements.
- The brake pipe and main reservoir pipe (where applicable) must be connected throughout the train.
- There must be no marker lights exhibited on the locomotive(s) marshalled on the second train.

Refer to ***Distributed Power*** **- Section 2 Locomotive Operations** for conditions of operation for locomotives.

OPERATION OF TRAINS ON STEEP DESCENDING GRADES

Freight trains descending steep grades

Freight trains descending steep grades must be fitted with operable grade control equipment, such as fixed exhaust chokes, to at least 80% of the train mass (excluding locomotives).

Dynamic brake must be used when it is available. Refer to **Multiple Unit Working of Locomotives** in **Section 2 - Locomotive Operations** for Dynamic Braking Restrictions.

The handbrake on the light locomotive(s) must be operational.

HOLDING A TRAIN STATIONARY ON A GRADE

A train can be held stationary at any location by use of the locomotive's independent brake provided a qualified person is stationed in the cab of the locomotive controlling the train brakes.

In the event that a train cannot be held stationary with the independent brake the automatic brake may be used to hold the train stationary provided:

- the locomotive controlling the train brakes is fitted with an operable pressure maintaining brake valve,
- a qualified person is stationed in the cab of the locomotive controlling the train brakes,
- the brake pipe pressure does not fall below 330 kPa

HOLDING A TRAIN STATIONARY ON A GRADE (Continued)

If any of the above conditions cannot be met the train must be secured with handbrakes after 10 minutes of the train stopping, or the event occurring.

In the case where it is necessary to apply handbrakes because of the reasons above they need to be applied quickly ie from the front of the train.

If the handbrakes are required to hold a freight train with locomotive(s) attached on a grade or freight vehicles with locomotive(s) detached, the minimum number of handbrakes to be applied is as follows:

Majority of the train on a gradient of	Minimum number of handbrakes
Level to 1 in 100	3 in 10 (30%)
1 in 99 to 1 in 50	5 in 10 (50%)
1 in 49 to 1 in 33	8 in 10 (80%)
1 in 32 to 1 in 25	All (100%)

On locomotive hauled passenger trains, the handbrakes must be applied **on all vehicles** before the locomotives are detached.

TRAIN SPEED

The speed of any train must not exceed the maximum allowable speed for the slowest rated locomotive or vehicle in the train consist, as specified in the **Section 10 Locomotives and Rolling Stock Data** pages and the **MAXIMUM SPEED OF LOCOMOTIVES AND ROLLING STOCK** table in the appropriate **Section pages,** together with any permanent or temporary speed boards displayed for the section of track.

OPERATION OF LOCOMOTIVES AND PASSENGER VEHICLES NOT FITTED WITH TOILET HOLDING TANKS

Locomotives and passenger rolling stock not fitted with toilet/waste holding tanks must have their toilets locked at all times to prevent use and effluent discharge to track when the vehicle is operating on the NSW Country Rail Network. (Ref. CRN Standard CRN RS 008 and the Protection of the Environment Operations Act 1997).

ADVISORY SPEED SIGNS

FREIGHT & LOCOMOTIVE HAULED PASSENGER TRAINS (Excepting XPT/ Xplorer/ Endeavour/Hunter Rail Cars)
Yellow reflective material
Red lettering.

At particular signals there may be insufficient sighting distance for trains, travelling at track speed, to stop within the signalling distance. In these cases **advisory speed signs** have been positioned approaching these signals. The location of advisory speed signs is listed in the relevant Section Pages.

ADVISORY SPEED SIGNS (Continued)

XPT / XPLORER/ ENDEAVOUR / HUNTER RAIL CARS
Silver reflective material
Red lettering

Drivers of XPT, Xplorer, Endeavour and Hunter Rail Cars are required to regulate the speed of their train to ensure that before sighting the signal indication, the speed is not in excess of that figure shown on the advisory speed sign appropriate to their train. If when the signal is sighted and it is exhibiting a full clear indication, then normal track speed for the train concerned may be resumed.

LONG FREIGHT TRAINS
Exceeding **1150 metres** in length
Blue reflective material
Yellow lettering.

On some track sections, **advisory speed signs** have been placed specifically for freight trains ***exceeding 1150 metres in length***.

When approaching the **advisory speed sign**, the driver is to regulate the speed of the train so that when the applicable signal is sighted the train is not travelling in excess of the **maximum speed.** The locations of these advisory speed signs are listed in the appropriate Section Pages.

NORMAL TRACK SPEED SIGNS

FREIGHT & PASSENGER SERVICES, TRACK MAINTENANCE VEHICLES (Except for XPT/ XPLORER/ ENDEAVOUR/HUNTER RAIL CARS)
Yellow reflective background material
Black lettering.

A single yellow background speed sign displays the default speed for all rail traffic. This sign applies when there is no other sign displayed.

When a speed reduction is required, all trains must be at or below the speed value displayed on the speed sign when the front of the train reaches the sign.

When a speed increase is permitted, all trains must not increase speed until the rear of the train reaches the speed sign.

XPT TRACK SPEED SIGNS

XPT/ XPLORER/ ENDEAVOUR/HUNTER RAIL CARS
White reflective background material
Black lettering.

A white background speed sign by itself or under a yellow background speed sign, applies only to XPT, Xplorer, Endeavour and Hunter Rail Cars. If the sign is not displayed then the Normal Speed Sign becomes the default speed.

When a speed reduction is required, trains must be at or below the posted speed when the front of the train reaches the sign.

When a speed increase is permitted, trains must not increase speed until the rear of the train clears the speed sign.

TURNOUT SPEED SIGN

NORMAL SIGN

Default turnout sign applies to all rail traffic when no other sign is present.

XPT SIGN

Applies only to XPT, Xplorer, Endeavour and Hunter Rail Cars.

The letter 'X' before the numbers on a permanent speed sign at a turnout shows the maximum speed for the turnout.

If there is no speed sign at a turnout, rail traffic must not travel faster than 25km/h through the turnout.

Trains or track vehicles must maintain a speed at or below the posted speed until the last vehicle clears the turnout.

WOLO SPEED RESTRICTIONS

To be read in conjunction with Network Rule NGE 210.

During extreme hot weather conditions, there is a risk of track misalignment due to track buckle. In order to reduce the risks involved, the speed of trains for all lines within the affected area must be reduced when high temperatures are indicated for that area. This is accomplished by introducing WOLO conditions.

When **WOLO** conditions are in force the speed of any train must not exceed the appropriate **WOLO** speed specified below:

Train Type	Ruling Train Speed #	WOLO Speed
Passenger trains (all types) and light locomotives	100 km/h or more 95 km/h 90 km/h 85 km/h 80 km/h 75 km/h 70 km/h or less	90 km/h 85 km/h 80 km/h 75 km/h 70 km/h 65 km/h Allowable track speed but not exceeding 60 km/h
Freight trains containing ***all loaded vehicles*** OR Freight trains containing ***one or more empty vehicles***, all of which must have an allowable, empty vehicle speed exceeding 80 km/h. **NOTE:** For the purpose of this rule, a loaded vehicle is one with a gross mass of 30 tonnes or more.	90 km/h or more 85 km/h 80 km/h 75 km/h 70 km/h or less	80 km/h 75 km/h 70 km/h 65 km/h Allowable track speed but not exceeding 60 km/h

WOLO SPEED RESTRICTIONS (Continued)

Train Type	Ruling Train Speed #	WOLO Speed
Freight trains containing ***one or more empty vehicles***, which are restricted to an allowable, empty vehicle speed of 80 km/h or lower.	80 km/h or less.	Allowable track speed but not exceeding 50 km/h.

NOTEs: For the purpose of this rule, a loaded vehicle is one with a gross mass of 30 tonnes or more.

The ruling train speed shall be the allowable track speed or the allowable vehicle speed, as specified in the **SECTION PAGES**, whichever is the lesser.

STABLING A TRAIN ON A RUNNING LINE OR IN A SHUNTING NECK WHEN AUTHORISED

Trains or vehicles must not be stabled on any running line or in a shunting neck unless authority is given by the Network Manager or, in the case of an emergency, by the train controller for the area concerned.

Authorised locations for stabling of trains are listed in the appropriate section pages.

EMERGENCY EQUIPMENT

Locomotives must carry the following emergency equipment:

- detonators (minimum of 24)
- a sealed first aid box
- two red flags and one green flag
- a two-way radio
- a towing chain
- a continuity tester
- a white disc
- a spare EOTM (End of train Marker)
- spare 25 mm and 32 mm train air brake coupling hoses
- a ½" x 5/8" and ¾" x 7/8" open ended spanner
- air hose spanner
- a monkey wrench
- a hammer, chisel and pin punch
- chocks (minimum of 4)
- Three approved track circuit shorting clips
- fire extinguisher

Multiple unit trains must carry the following emergency equipment:

- Detonator box containing:
  - 1 canister of non-expired detonators
  - Three approved track circuit shorting clips
  - two red flags and one green flag
- a two-way radio
- rope for tying down pantographs
- spare 25 mm and 32 mm train air brake coupling hoses (where required)
- a spare trip hose (where required)
- a ½" x 5/8" and ¾" x 7/8" open ended spanner
- fire extinguisher

DRIVER SAFETY SYSTEMS

All locomotives, multiple unit trains and nominated infrastructure maintenance vehicles must be fitted with driver safety systems as detailed in CRN Standard CRN RS 013**.**