

ANPR 720

## Protecting Trains

### Applicability

NSW

SMS

### Publication Requirement

External Only

### Document Status

Issue/Revision #	Effective from
2.0	11 October 2015

## Introduction

Trains require *protection* in all circumstances if:

- they need assistance, or
- they *obstruct*, or might obstruct, *adjacent* lines, or
- the line is obstructed.

Trains may require protection if delayed in *track-circuited territory*.

## Protecting a delayed train in track-circuited territory

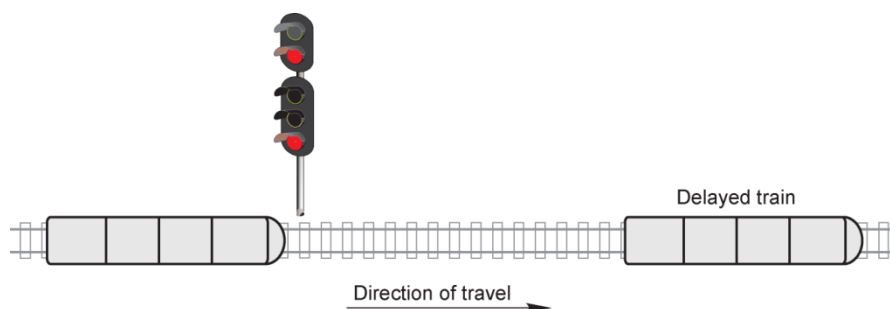
### Train Crew

1. If possible, get the *Signaller's* assurance that immediately following *rail traffic* has been or will be stopped.
2. No further protection is necessary if:
  - the Signaller has given an assurance that immediately following rail traffic has been or will be stopped
  - a train or *track vehicle* is standing at a signal at STOP behind the delayed train, and the *Driver* or *track vehicle operator* has given an assurance that they will not pass that signal.
3. Place protection if:
  - the Driver or track vehicle operator has not given an assurance that rail traffic standing at the signal behind the delayed train will not pass the signal, and
  - you cannot speak to the Signaller to get their assurance that immediately following rail traffic has been or will be stopped.

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Figure ANPR 720-1

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Rail traffic standing at a signal at STOP with assurance from the Driver or track vehicle operator.  
No further protection of the delayed train is necessary.

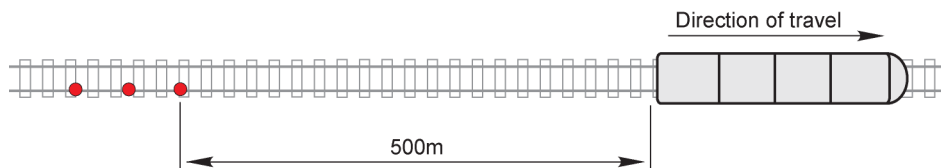
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4. Place three *detonators* on the line at the nearer of:
  - 500m behind the delayed train, or
  - the first signal at STOP behind the delayed train.

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**Figure ANPR 720-2**

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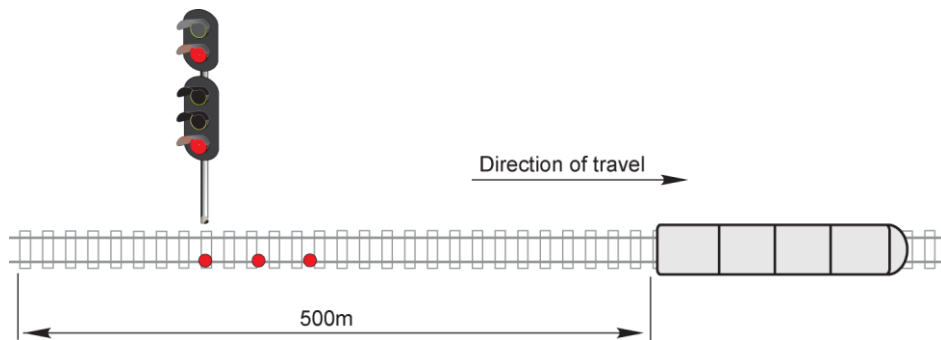
Detonators placed at 500m to protect a train from following rail traffic

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**Figure ANPR 720-3**

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Detonators placed at the first signal at STOP behind a delayed train to protect it from following rail traffic

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5. Return to the train.

## Protecting a train needing assistance

A stopped train that needs assistance from another train needs to be protected.

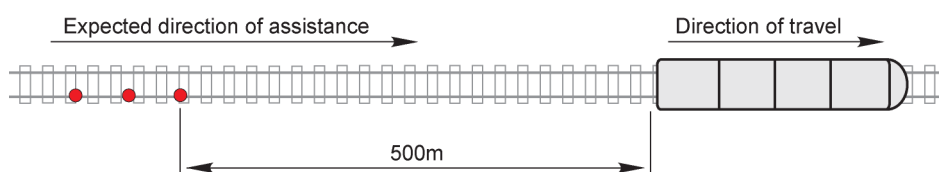
### Train Crew

1. Secure the train.
2. Tell the *Network Control Officer* that this has been done.
3. Ask the Network Control Officer about the direction from which assistance will approach.

### Assisting from behind

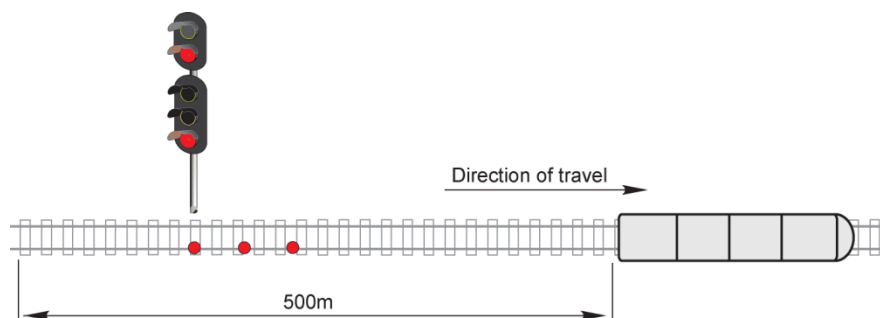
4. No further protection is necessary if:
  - the assistance will come from behind, and
  - another train is standing at a signal at STOP within 500m behind the train needing assistance.
5. If there is no train standing at a signal at STOP within 500m behind the train needing assistance, place three detonators on the line at the nearer of:
  - 500m behind the train, or
  - the first signal at STOP behind the train.

Figure ANPR 720-4



Detonators placed at 500m to protect a train from an assisting train

Figure ANPR 720-5



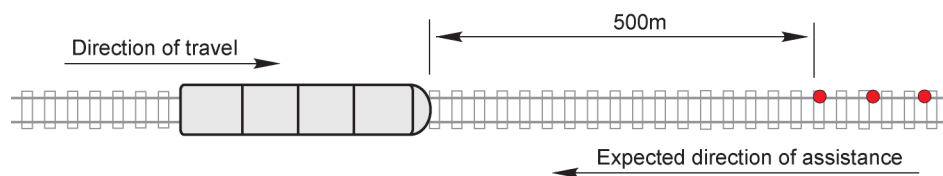
Detonators placed at the first signal at STOP behind a train to protect it from an assisting train

6. Tell the Network Control Officer the location of the protection.
7. Return to the train.

### Assisting from the opposing direction

8. If assistance is expected from the opposing direction, place three detonators on the line 500m forward of the train in the expected direction of assistance.

Figure ANPR 720-6



Detonators placed to protect a train from an assisting train approaching from the opposing direction

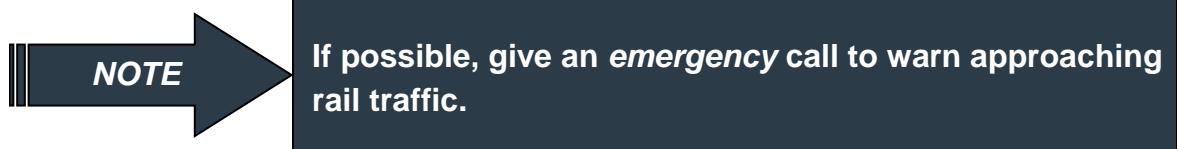
9. Tell the Network Control Officer the location of the protection.
10. Return to the train.

### Network Control Officer

11. If advice is not included in a *Proceed Authority*, give the Drivers of assisting trains a *Condition Affecting the Network* (CAN) warning. Include the location of the train needing assistance and the location of the protection.

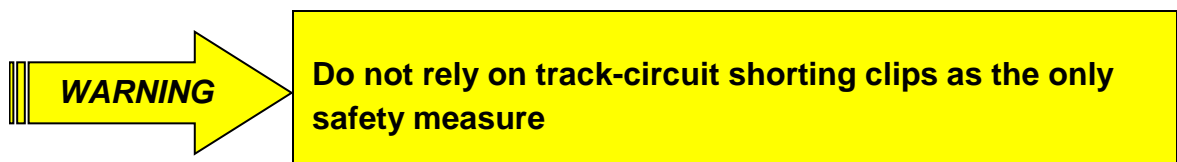
## Protecting adjacent or obstructed lines

Protection is needed for obstructed lines, or for the lines adjacent to *disabled* rail vehicles if the vehicles are or might be *foul* of the lines.



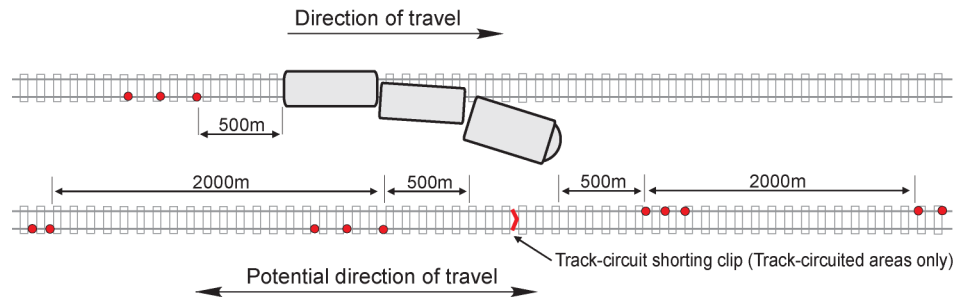
## Train Crew or Qualified Worker

1. Ask the Network Control Officer to:
  - stop approaching rail traffic, and
  - set signals at STOP with *blocking facilities* applied.
2. If in track-circuited territory:
  - fasten a *track-circuit shorting clip* to the heads of the rails of the adjacent or obstructed lines, and
  - if possible, confirm that *affected signals* show STOP.



3. Get an assurance that other trains in the *sections* have been stopped.
4. If the Network Control Officer cannot give an assurance that rail traffic has been or will be stopped:
  - place three detonators on the affected adjacent lines, 500m from the obstructing train in the directions of possible approach by rail traffic, and
  - place two detonators on the affected adjacent lines at a further 2000m in the directions of possible approach by rail traffic.

Figure ANPR 720-7



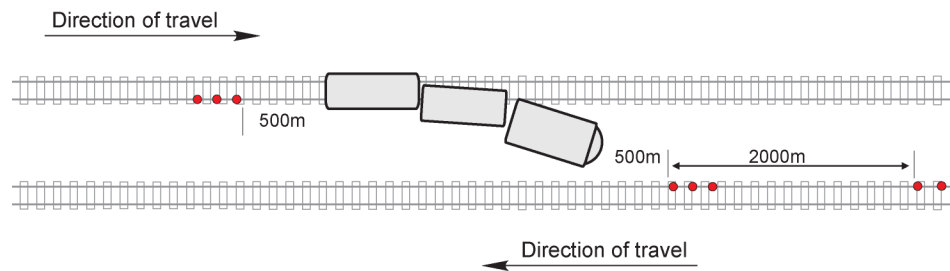
Detonator placement to protect an adjacent line from an obstructing train in bidirectional double-line territory



If the adjacent lines are *bidirectional*, place protection in both directions.

5. Return to the train.

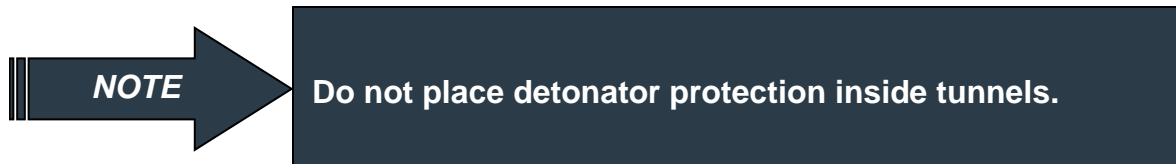
Figure ANPR 720-8



Detonator placement to protect a derailed train and the adjacent line

## Protecting trains near tunnels

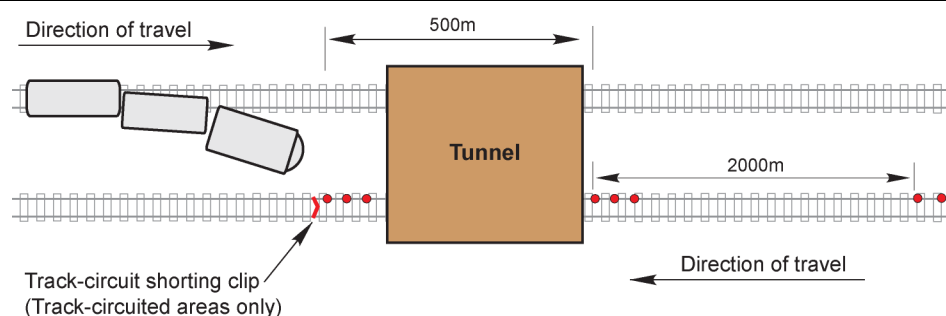
Follow these steps if a tunnel is near the area to be protected.



### Train Crew

1. Talk to the Network Control Officer and:
  - ask them to have *controlled signals* on affected lines set and kept at STOP with blocking facilities applied, and
  - get an assurance that other trains in affected sections have been stopped.
2. If the stopped train is closer than 500m to a tunnel, place:
  - three detonators on affected lines at the near opening of the tunnel, and
  - a second group of three detonators on affected lines beyond the far opening of the tunnel, and
  - two detonators at a further 2000m in the direction of rail traffic approach.

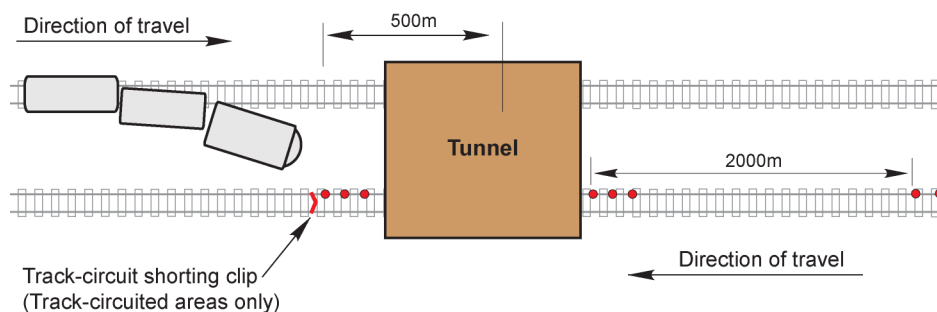
Figure ANPR 720-9



Detonator placement at a tunnel exit and at 500m from a train



Figure ANPR 720-10



Detonator placement at the entrance and exit of a tunnel if the 500m distance from the train falls inside the tunnel

## Related ARTC Network Procedures

ANPR 709	Using detonators
ANPR 712	Protecting work from rail traffic on adjacent lines
ANPR 721	Spoken and written communication

## Effective Date

11 October 2015