

ANSY 502

Train Order System

Applicability

NSW

SMS

Publication Requirement

External Only

Document Status

Issue/Revision #	Effective from
3.0	11 October 2015

Purpose

To prescribe the rules for using the Train Management and Control System (TMACS) *Train Order system of Safeworking* in the *Australian Rail Track Corporation (ARTC) NSW Network*.

System Principle

The Train Order system:

- prevents *rail traffic* entries into occupied *blocks*, and
- is a *bidirectional* system used only on single lines outside *Rail Vehicle Detection territory*.

In *Train Order territory*, Train Orders are the only normal authorities for:

- a *through-movement* only, or
- *shunting* at a *location* (Shunt Order), or
- a through-movement with *shunt access* at a location.

If the Train Order system of Safeworking fails, a method of *special working* may be introduced.

Computerised Train Order working

Network Controllers compile Train Orders and *Track Occupancy Authorities* (TOAs) in computerised workstations.

The system maintains *blocking facilities* against *issue* of Train Orders for conflicting movements and *occupancies*.

For each reporting location, the system generates a *security code* (security number).

Entry of the relevant security code into a workstation:

- removes a blocking facility, and
- releases the affected block.

Manual Train Order working

If the computerised system fails, manual Train Order working without security codes is introduced.

Network Controllers:

- compile Train Orders and TOAs manually, and
- *must* not issue authorities for conflicting movements and occupancies.

System Description

Network Controllers must:

- dictate Train Orders or TOAs and security codes to *Drivers, track vehicle operators, Protection Officers, or Qualified Workers* directing shunting, and
- make sure that Train Orders and movements are recorded, in *permanent form*, on a *Train Control diagram*, and
- only issue an authority for track under their control.

Qualified Workers receiving Train Orders must:

- compile them on a Train Order form (ANRF 009), and
- confirm Train Orders and security codes by reading them back to the Network Controller.

Details of the Train Order for a journey must be progressively reported, *fulfilled* and confirmed at the locations specified in the Train Order.

TOAs must be issued:

- in accordance with Rule *ANWT 304 Track Occupancy Authority*, and
- on a TOA form (ANRF 002).

Security codes

Network Controllers must:

- dictate security codes to *Qualified Workers* together with the relevant Train Order, and
- not write down security codes.

If a Train Order or a TOA is partly fulfilled, fulfilled or *cancelled*, Network Controllers must not enter security codes into the system before:

- the location of rail traffic has been confirmed, and
- reporting *Qualified Workers* have dictated back relevant security codes.

Proceed Authority

Authority to enter a block is given by a valid Train Order.

Train Orders must specify:

- departure and fulfilment locations, and
- if necessary, reporting, *crossing* and shunting locations.

Rail traffic must pass indicators at STOP only in accordance with Rule ANSG 610 *Passing indicators at STOP*.

Issuing a Proceed Authority

Limit of authority

The *limit of authority* for a Train Order must be:

- an entry-end YARD LIMIT sign, or
- the departure-end clearance point of a crossing location, or
- the departure end SHUNT LIMIT sign of a siding location, or
- the END TRAIN ORDER WORKING sign at a signalled location, or
- the END TRAIN ORDER WORKING sign at a Non-Train Order location, or
- the END NETWORK CONTROL sign at a Network Control boundary location.

The limit of authority for a Shunt Order must be:

- a SHUNT LIMIT sign for a location, or
- in locations where SHUNT LIMIT signs are not provided, the YARD LIMIT signs.

Train Orders must not *authorise* rail traffic to proceed:

- through signalled locations, or
- beyond Network Control boundary locations, or
- beyond intended crossing locations, or
- beyond locations for planned changes of crew.

Moving trains

Train Orders may be transmitted to the *Train Crews* of moving *trains* by radio, or other form of on-board communications.

Train Orders must not be compiled or confirmed by Train Crew members who are operating the controls of moving trains.

Transfer of Orders

Train Orders must not be passed between Train Crews at changes of crew.

Crossing and Passing Trains

Crossing and *passing* movements may be authorised at crossing and *siding* locations.

The Train Controller must:

- determine the order of movement for a crossing, and
- tell Drivers which *routes* to use.

One train in the movement must be able to stand:

- wholly between clearance points at the location, or
- clear of the *main line*.

The Driver of the first train to arrive within *yard limits* must:

- come to a stand, and
- report arrival to the Network Controller.

The Train Controller must not authorise the second train to enter yard limits before the first train is stationary:

- wholly between clearance points at a crossing location, or
- at a departure end clearance point, or
- clear of the main line in a siding.

If there is a Train Order with shunt access current at a location that has no SHUNT LIMIT signs, other rail traffic must not be authorised to approach the location.

Variation of Train Orders

The Network Controller must arrange to cancel a Train Order, and issue a new one, if the Train Order:

- needs to be varied, or
- cannot be fulfilled.

Before a Train Order may be cancelled, the affected rail traffic must be stationary at:

- a crossing or siding location, or
- a block location or signalled location, or
- a Network Control boundary location, or
- a mishap location.



Rail traffic that has a Train Order for a section in advance of the current authority ('next order') and is closely approaching the limit of the current authority must be brought to a stand before the next order is cancelled.

Loss of Train Orders

Qualified Workers must report the loss of a current Train Order to the Network Controller as soon as possible.

If a Train Order is lost before rail traffic departs from a location, the rail traffic must not depart.

If a Train Order is lost after rail traffic departs from a location, the rail traffic must not pass the entry-end YARD LIMIT sign at the next location.

The Network Controller must:

- obtain a Superintendent's security code to cancel or fulfil the lost Train Order, and
- if *travel* is to continue, issue a new Train Order.

Reporting

Departure

Drivers and track vehicle operators must report departure to the Network Controller:

- from departure locations, and
- from reporting locations.

Departure must be reported only after the rearmost vehicle has cleared:

- a BEGIN TRAIN ORDER WORKING sign, or
- a BEGIN NETWORK CONTROL sign, or
- the YARD LIMIT sign at the departure-end of a location specified in the Train Order.

The *Train Order location* immediately preceding the limit of a Train Order must be specified as a reporting location.

Network Controllers must confirm with Drivers and track vehicle operators:

- *train numbers*, and
- *lead locomotive numbers* or *track vehicle numbers*, and
- departure times, and
- the limit of authority for the current Train Order.

Arrival

If a Train Order has shunt access, Drivers and track vehicle operators must report arrival at the shunting locations to the Network Controller when the rail traffic:

- is between SHUNT LIMIT signs, or
- where SHUNT LIMIT signs are not provided, between YARD LIMIT signs.

Fulfilment at crossing locations

At crossing locations, Drivers and track vehicle operators must fulfil the Train Order only if the rail traffic is:

- stationary between clearance points, or
- clear of the main line or loop.

If rail traffic is over-length, Drivers and track vehicle operators must fulfil the Train Order only if the rail traffic is stationary at the departure-end clearance point.

Fulfilment at siding locations

At siding locations, Drivers and track vehicle operators must fulfil the Train Order only if the rail traffic is:

- stationary between SHUNT LIMIT signs, or
- clear of the main line.

If rail traffic is over-length, Drivers and track vehicle operators must fulfil the Train Order only if the rail traffic is stationary at the departure-end SHUNT LIMIT sign.

Fulfilment at signalled locations

At signalled locations, Drivers and track vehicle operators must fulfil the Train Order only if the rail traffic has completely passed the END TRAIN ORDER WORKING sign.

Fulfilment at Network Control boundary locations

At Network Control boundary locations, Drivers and track vehicle operators must fulfil the Train Order only if the rail traffic has completely passed the END NETWORK CONTROL sign.

Confirming the location of rail traffic

Network Controllers must confirm the location of rail traffic from:

- the train radio workstation, or
- Drivers and track vehicle operators.

Communications failure

If primary communications in a train or track vehicle fail, Drivers and track vehicle operators must:

- report departure from a reporting location at the first available location, and
- if possible, report at the location immediately preceding the limit of the Train Order.

The Network Controller may delegate Qualified Workers *certified* in Train Order working to relay information between *Network Control* and Drivers or track vehicle operators without communications.

Oposing rail traffic with failed primary communications must not be authorised to approach a location simultaneously.

Related ARTC Network Procedures

ANPR 719	Operating groundframes
ANPR 721	Spoken and written communication

Effective Date

11 October 2015