Intercar Connectors System (03): Safe Working

Document no.	Work description
SMS-06-SW-1249	This document describes safe work practices related to the maintenance of components within the train Intercar Connectors system
	Scope This document describes the hazards and controls for work by RSD staff on Rollingstock intercar connectors This document does not replace technical 'how to' documents such as Engineering Instructions, Manufacturers' instructions etc
Review date	**References**
31/01/11	• OHS Act 2000 • OHS Regulations 2001 • Rail Safety Act 2008 • SMS-12-OI-0886 Red Flagging Trains in stabling yards, depots and Maintenance Centres • SMS-06-SW-0836 Isolating 1500V DC OH using an Annett Key • SMS-06-SW-0838 Pantograph Raising and Lowering • SMS-06-SW-1133 Guard's Emergency Cock Lock-Out • SMS-06-SW-0487 Entering Trains from Ballast • SMS-06-SW-0488 Climbing out of Trains onto Ballast • SMS-06-PR-0173 Plant and Equipment Lock-out Tag-out • SMS-06-GD-0240 Working At Heights • SMS-06-PR-0104 Workplace Risk Management • SMS-06-GD-0001 Guide to Manual Handling • SMS-06-SW-0400 Forklift Trucks • SMS-06-SW-1130 Electrical Isolation Diesel Fleet • SMS-06-SW-1264 Tailbolt Coupler Change – Safe Operation • SMS-06-SW-0779 Lift Shop Repairs • SMS-06-SW-1162 Portable Work Platform • SMS-06-SW-0264 Portable Ladders, Stepladders and Step Platforms

Responsible supervisor	PPE and precautions	Competencies or qualifications	Licences or permits required
Line Manager	• High visibility vest or clothing • Safety Footwear • Hearing Protection as required	• Rail Industry Safety Induction (RISI) • Site specific induction • Electrical Safety Awareness • Competent in the use of this SWI • Competent in the use of relevant technical documents (eg. EIs) • Competent in intercar connector work • Manual Handling Training	• Forklift Certificate of Competency, as required

Tools and equipment required

- Red Flag
- Personal Locks, Multi-locks (Hasps) and/or Danger tags, as required
- Powered tools
- Hand tools

IF CONTROL MEASURES ARE NOT SUITABLE AND MAJOR CHANGES ARE NEEDED, CONDUCT A RISK ASSESSMENT AND DEVELOP NEW CONTROLS ACCORDING TO SMS-06-PR-0104 WORKPLACE RISK MANAGEMENT.

Warning

The following warnings apply throughout this SWI

- *The intercar connector system can be fed by electrical and/or pneumatic energy sources, as well as compressed spring loaded mechanical components. Failure to isolate all energy types before working on this system could result in serious injury or death*

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	• *Working with electric or pneumatic tools can be hazardous. Where possible use non-powered or battery operated tools. If powered tools are required, always work in accordance with the relevant SWI* • *Working between cars presents a significant crush hazard. Always ensure the train has been isolated to protect you from train movement. Failure to do so could result in serious injury or death* • *Work carried out in the proximity of forklifts can present a serious crush hazard. Ensure the operator has a clear path to travel and work at all times. Hydraulics can creep so never allow anyone to work beneath lifted equipment. Only trained and competent forklift operators are to drive or otherwise use forklifts. All forklift operation is to be conducted in accordance with SMS-06-SW-0400 Forklift Trucks*
Competency	Staff are to be trained and supervised to ensure they: • Transport required parts, tools and equipment to and from the work area using manual aids (such as trolleys) so as to minimise the risk of manual handling injuries • Operate forklifts in accordance with their training, site traffic management plans and relevant SWIs • Carry out the tasks in accordance with technical documents (eg. EIs) • Implement necessary controls, in accordance with this document • Work with Line Manager to identify any additional hazards and implement controls in accordance with relevant SWIs and other SMS components
Place Red Flag	To notify persons that intercar connector work is being carried out on the train you must place your Red Flag in accordance with SMS-12-OI-0886 Red Flagging Trains in stabling yards, depots and Maintenance Centres
Isolation	Before commencing any work on intercar connector systems, isolation is required to protect from injury or death. The isolation required may vary, depending upon the work, and should be determined in conjunction with line management, however the following is mandatory
For Electric Fleet	To protect from the movement of Electric Trains always: • Lower the pantograph(s), in accordance with SMS-06-SW-0838 Pantograph Raising and Lowering, upon completion of this task always undertake a visual inspection to verify this has been achieved and / or • Isolate the road, in accordance with SMS-06-SW-0836 Isolating 1500V DC OH Using an Annett Key, and / or • Isolate the guard's emergency cock, in accordance with SMS-06-SW-1133 Guard's Emergency Cock Lock-Out
	To protect from electrical and pneumatic energy within the intercar connector system always: • Isolate electrical power to the coupler by removing the battery fuses on S sets and switching off the battery isolation switch on Tangara's • Isolate pneumatic power to the coupler by cutting out the Brake Pipe (BP) Cock, and the Main Reservoir (MR) Cock and • Once isolated, apply personal locks, multi-locks and/or tags to all isolations, in accordance with SMS-06-PR-0173 Plant and Equipment Lock-out Tag-out
Check	Visually inspect that the pantograph(s) has been lowered from the overhead power supply
	***Warning*** *Ensure all pantographs are lowered in accordance with SMS-06-SW-0838 Pantograph Raising and Lowering. **Visually check** that the pantographs are lowered. Do not simply rely on the pantograph air pressure gauge, this will not guarantee that the pantographs are lowered. Failure to confirm that pantographs are lowered correctly may lead to serious **INJURY** or **DEATH**.*
	***Note*** If due to its design, it is currently not possible to apply a lock or tag to a switch or circuit breaker: o Isolate the circuit o Lock or seal (using tape) the Control Panel o Attach a Danger Tag to the Control Panel door
	***Warning*** • *Failure to correctly isolate all energy sources could result in serious injury or death. Always verify that isolation has been achieved and, if in doubt, seek assistance from your Line Manager*
For Diesel Fleet	To protect from the movement of Diesel Trains, in addition to the red flag, always: • Shut down the engine and apply the park brake fully • Take control of the road (e.g. place chocks, lower boom gate and/or place a Stop board at the front of the train)
	To protect from electrical and pneumatic energy within the intercar connector system always: • Isolate electrical power to the coupler by switching off the train supply in the Power Car and isolating and removing the shore supply if connected in accordance with SMS-06-SW-1130 Electrical Isolation

	Diesel Fleet and • Isolate pneumatically power to the coupler by cutting out the Main Reservoir (MR) & Brake Pipe (BP) cocks and • Apply personal locks, multi-locks and/or tags to all isolations, in accordance with SMS-06-PR-0173 Plant and Equipment Lock-out Tag-out
	**Warning** • *Failure to correctly isolate all energy sources could result in serious injury or death. Always verify that isolation has been achieved and, if in doubt, seek assistance from your Line Manager*
Investigate Work Required	Once isolation has been put in place, inspect the relevant intercar connector component(s) to determine the work required Identify the relevant tools, equipment and parts that will be required Identify any other relevant SWIs (eg. SWIs for relevant tools) that will document hazards and their controls Collect identified items from the store and transport to the location using manual handling aids (eg. trolleys, or Electric powered maintenance vehicles) Where possible, climb in and out of the cars from platforms. If it is necessary to access from floor level or ballast always do so in accordance with SMS-06-SW-1162 Portable Work Platform, SMS-06-SW-0264 Portable Ladders, Stepladders and Step Platforms, or SMS-06-SW-0487 Entering Trains from Ballast and SMS-06-SW-0488 Climbing out of Trains onto Ballast
Carry Out Intercar Connector Work	Once isolation and other relevant controls have been put in place, carry out the intercar connector work
	***Warning*** Some intercar connector work has unique hazards. These include…
Remove & Replace Coupler	• Manual handling hazard as couplers are heavy and therefore must be removed and replaced with assistance of a forklift. XPT Tailbolt couplers must be replaced in accordance with SMS-06-SW-1264 Tailbolt Coupler Change – Safe Operation • A serious crush hazard when working in proximity to forklifts. Ensure the operator has a clear path to travel and work at all times. Hydraulics can creep so never allow anyone to work beneath lifted equipment. Only trained and competent forklift operators are to drive or otherwise use forklifts. All forklift operation is to be conducted in accordance with SMS-06-SW-0400 Forklift Trucks
Remove & Replace Intercar Gangway	• Manual handling hazard as Intercar Gangways are large, heavy and awkward to move and therefore must be removed and replaced with assistance of a forklift and a two-person lift • A serious crush hazard when working in proximity to forklifts. Ensure the operator has a clear path to travel and work at all times. Hydraulics can creep so never allow anyone to work beneath lifted equipment. Only trained and competent forklift operators are to drive or otherwise use forklifts. All forklift operation is to be conducted in accordance with SMS-06-SW-0400 Forklift Trucks • Impact injury from compressed or spring loaded parts associated with the Intercar Gangway. The energy from these components must be gradually released to ensure the safety of those working in the area • Fall hazard when removing and replacing the intercar gangway, particularly attaching the curtain to the diaphragm, introduces exposure to working at height hazards. Therefore all such work is to be carried out from an approved platform. If, for any reason, this cannot be achieved, alternative working at heights controls must be implemented, in accordance SMS-06-GD-0240 Working At Heights • Fall hazard from open doors. Ensure doors are closed as soon as they are not required, to prevent others from falling
Remove & Replace Pneumatic Hoses	• Air blast injury when removing or replacing hoses. This can be safely carried out after cutting out the Main Reservoir (MR) & Brake Pipe (BP), (as described on page 2)
Remove and Replace Cocks and/or Pipework	• Air blast injury when removing or replacing cocks or pipework. To prevent injury:- • In addition to the cutting out of the Main Reservoir (MR) & Brake Pipe (BP) cocks (as described on page 2). Isolate the carriage from the main air supply by cutting out the Main Reservoir (MR) & Brake Pipe (BP) cocks on the adjoining cars and • Drain all the air from the car's pipework
Remove & Replace Electrical Connectors & Components	• Electric shock from the removal or replacement of jumper leads. This can be safely carried out on both the diesel and electric fleet after isolating, (as described on page 2) • Before the removal of other electrical components, including contacts, receptacles or wiring, the battery must be isolated, in addition to lowering the pantographs and/or isolating the road (see page 1)

	• However, for the diesel fleet the car being worked on must be electrically isolated, in accordance with SMS-06-SW-1130 Electrical Isolation Diesel Fleet before removal of any electrical components, including contacts, receptacles or wiring
	***Note*** • Always carry out work in accordance with relevant technical documents (eg. EIs)
Clean Up	Once work is complete, clean up any spills and remove tools, equipment & parts and dispose of rubbish in waste disposal containers / bins
Remove Isolation	Once area is safe, remove all previously applied isolations , in accordance with the referenced SWI
	***Warning*** • *Only remove your own isolation. The removal of another persons lock and / or tag may result in their injury or death. Offenders will be subject to strict disciplinary action and may be subject to prosecution by the regulator*
Remove Red Flag	Remove your Red Flag, in accordance with SMS-12-OI-0886 Red Flagging Trains in Stabling Yards, Depots and Maintenance Centres
	***WARNING*** *Removal of a RED flag or PId card without authorisation may be treated according to Just Culture Policy as a reckless violation of a safety procedure*
Notify	Ensure old components and waste are removed from the train Dispose of waste so as they can not cause injury to others, such as in a designated bin Notify the Line Manager (supervisor or foreman) of completion, as required

Additional controls

- *Other controls may be necessary, depending upon the work being carried out. Refer to relevant SWIs*
- *If you identify additional hazards and / or controls relevant to this SWI, notify your Safety Facilitator or Line Manager as soon as practicable, so they can be noted and used to continuously improve this document*

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