Safe Work Instruction	Issue date: 24/11/09
Train Door System (04): Safe Working	Review date: 31/01/11

Document no.	**Work description**
SMS-06-SW-1165	This document describes safe work practices related to the maintenance of components within the Train Door System
	Scope This document describes the hazards and controls for work by RSD staff on Rollingstock Train Door Systems This document does not replace technical "how to" documents such as Engineering Instructions, Manufacturers instructions etc To minimise the risk of falls, all door system work is be carried out from within the train or from a fixed or mobile work platform. If this is not possible, additional controls, in accordance SMS-06-GD-0240 Working At Heights, will be required. These controls are to be determined through risk assessment carried out in accordance with SMS-06-PR-0104 Workplace Risk Management
Review date 31/01/11	**References** • OHS Act 2000 • OHS Regulations 2001 (Clause 64, 80, 81, 207 & 208) • Rail Safety Act 2008 • COP Low Voltage Electrical Work • AS 61010.1-2003 Safety requirements for electrical equipment for measurement, control & laboratory use • HB 187-2006 Guide to Selecting a Safe Multimeter • 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-1133 Guard's Emergency Cock Lock-Out • SMS-06-SW-0838 Pantograph Raising and Lowering • SMS-06-SW-0538 PPE for Electrical Work • SMS-06-SW-0269 Electric Shock Protocol • SMS-06-GD-0268 Working Around Electrical Equipment • SMS-06-PR-0173 Plant and Equipment Lock-out Tag-out • SMS-06-SW-0405 Handling Sharps • 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-0487 Entering Trains from Ballast • SMS-06-SW-0488 Climbing out of Trains onto Ballast • 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 • Gloves, as required • Safety Eyewear, as required • Respiratory protection, as required	• Rail Industry Safety Induction (RISI) • Site specific induction • Electrical Safety Awareness • Electrical trade certificate as required • Competent in the use of this SWI • Competent in the use of relevant technical documents (eg. EIs) • Competent in door work • Manual Handling Training	

Tools and equipment required

- Red Flag
- Personal Locks, Multi-locks (Hasps) and/or Danger tags, as required
- Power 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 door is powered by both electrical and pneumatic energy sources. Failure to isolate both energy types before working on the door system could result in serious injury or death* • *Working with power tools can be hazardous. Where possible use non-powered or battery operated tools. If power tools are required, always work in accordance with the relevant SWI or manufacturers instructions, if no SWI is available* • *An open door presents a fall hazard. Therefore always establish fall protection by working from or along side a fixed or mobile work platform. If this cannot be provided, additional control measures are required before work can proceed – see Scope (above).* • *Regardless of controls, when working beside an open door ensure the floor area is kept free from tools, equipment and parts, as they are a trip hazard. Additionally, clean up any spills as they are slip hazards* • *Beware of syringes and other contaminated items that may be hidden within door pelmets, panels and cabinets. Never reach into an area you cant see, wear gloves, as required and only handle sharps in accordance with SMS-06-SW-0405 Handling Sharps*
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 • 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 door work is being carried out on the train you must place a Red Flag in accordance with SMS-12-OI-0886 Red Flagging Trains in stabling yards, depots and Maintenance Centres
Investigate Work Required	Once the red flag is in place, inspect and/or test the door 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 yellow trucks) 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
	***Note*** • Should testing/fault finding on live electrical equipment and or wiring be required, this is only to be carried out: o by qualified electricians or apprentices under their direct supervision, when: o Competent in the requirements of electrical shock protocol in accordance with SMS-06-SW-0269 Electric Shock Protocol o Wearing all the PPE for electrical work in accordance with SMS-06-SW-0538 PPE for Electrical Work o Using approved electrical test equipment (e.g. a multimeter that complies with AS 61010.1-2003)
Isolation	Before commencing any work on door 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, 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 door system always • Access the Door Control Panel (Tangara) / Door Control Cabinet (Other), and • Isolate electrically by switching the electrical switch (Tangara) / circuit breaker (other), and • Isolate pneumatically by switching the pneumatic switch (Tangara) / Pneumatic valve (other), 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
	***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
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****.*
	***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 • Apply local road isolation (e.g. lock the boom gate, position the stop board and position chocks)
	To protect from electrical and pneumatic energy within the door system you must always • Access the Door Control Cabinet, and • Isolate electrically at the door circuit breaker, and • Isolate pneumatically at the pneumatic valve, 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*
Carry Out Door System Work	Once isolation and other relevant controls have been put in place, carry out the door work
	***Warning*** Some door work has unique hazards. These include…
Door Fittings Removal & Replacement	• Lacerations from door fittings with sharp edges. Wear your gloves when handling doors
Cleaning & Lubricating	• Exposure to chemicals. When working with chemicals you must first review the MSDS to identify relevant hazards and controls. Typically these will relate to flammability, ventilation and PPE
Glass Removal & Replacement	• Strains and sprains from handling heavy and/or awkwardly positioned glass. Make use of handling tools (eg. glass suction cap handles) and seek assistance, when handling heavy or large windows • Dropping glass. Glass can be slippery (particularly if its surface is covered by water or silicon spray). Dry off glass, gain assistance and make use of gloves and handling tools (eg. glass suction cap handles) • Laceration from broken glass. Wear gloves and eye protection whenever handling cracked or broken windows • Contact with chemicals. The removal and replacement of some glass involves the use of silicon spray. Refer to the MSDS for hazards and controls and always wear a mask to protect from inhaling spray
Door Removal & Replacement	• Strains and sprains from handling awkward and heavy doors. Always seek assistance, use a firm grip, keep back straight, bend knees and avoid twisting, bending or overreaching in accordance with your training. Where possible, make the door lighter by removing components (e.g. remove the glass infill panel of a Tangara door before attempting to move it) • Falls from open doors. Ensure you have established fall protection, in accordance with the initial warning (see page 1)

Door Motor Removal & Replacement	• Strains and sprains. This requires manual handling above shoulder height and therefore always seek assistance, use a firm grip, keep back straight, bend knees and avoid twisting, bending or overreaching in accordance with your training • Exposure to dust and other materials that may fall from above when removing the motor. Wear safety eyewear and when undertaking this step. Wear respiratory protection, as required
Inner Connecting (Fire Door) Tangara Removal & Replacement	• Strains and sprains from handling an extremely heavy and awkward door. Unfortunately, due to the nature of the door, it cannot be disassembled within the train to reduce its weight. For this reason it is to be removed and replaced whole, If a trolley is not yet available, the Fleet Manager is to authorise the purchase of such a trolley and may allow the use of trained, two-person lifts as an interim measure until the trolley arrives • Strains and sprains from manipulating the trolley. To ensure the use of this trolley does not introduce additional manual handling hazards, this task is to be carried out on a road that allows easy access for the trolley (eg. At Mortdale Maintenance Centre on 3 road or the loop load). The trolley is to be loaded into the train using a scissor lift or other manual handling aid. Refer to above SWI for additional information on hazards and controls • Strike by air or door. Before work commences, isolate pneumatics using the isolating switch beside the door motor cover (right hand side). Additionally ensure night safe switch is isolated in guard's compartment • Electric shock. To protect from electric shock, isolate door control circuit breaker located at o No 2 end under end saloon seat – Motor Car o No 2 end drive cab control panel – Trailer Car
	***Note*** • Always carry out any door work in accordance with relevant technical documents (eg. EIs)
Clean Up	Ensure doors are closed to protect others from falls 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**
Clean and Exit	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*