

NEW EQUIPMENT & SYSTEM APPROVAL PROFORMA

Ref: 08-08-11-097

Note: the prompts given below are only a guide to the information required for approval. Dependent on the type of equipment or system that requires approval delete any section that is not applicable or include additional information if necessary. **Mandatory** fields are marked with an asterisk (*).

1	Equipment or System to be approved * COMMON RAIL CHANGEOVER ON DUAL GAUGE 1600 mm / 1435 mm TRACK.																				
2	Originator * Name: Frank Lander Company: ARTC																				
3	Introduction * A common rail changeover is required for the Port River bridge project for two reasons: <ul style="list-style-type: none"> For historical reasons, the common rail on the line section from Dry Creek to Port Adelaide is on the opposite side to the common rail on the line section from Birkenhead to Outer Harbour. The new track construction involves a triangle which necessitates a common rail changeover at some point. These two requirements could be met by a single common rail changeover on the main line on the southern leg of the Port Flat triangle. Any other location would have required two common rail changeovers.																				
4	Determination of Need * Because the common rail changeover was to be on the main line, it needed to be rated for 60 km/h on the standard gauge and 45 km/h for the broad gauge. This relatively high speed requirement could not be met by a simple fixed point changeover, and so a moving point (ie bladed) design was required.																				
5	Significant Change or Not (as determined by the Manager Standards) * This change in equipment or system is assessed as SIGNIFICANT																				
6	Review Panel (as determined by the Manager Standards) * <ul style="list-style-type: none"> John Furness - Manager Standards Tim Calver - Standards & Technical Services Engineer Ian Domleo - Senior Track & Civil Engineer 																				
7	Safety The configuration whereby two switch assemblies would be combined into a common rail changeover is new, but the design principles are not new and are based on established AN designs. The design was carried out by Janus Railway and Civil (Roger Wyatt). Switchblades and stockrail machining details, and switch chairs are derived from the proven AN designs developed in the 1970's and 1980's developed for the Adelaide yard. Standard Pandrol baseplates and screwspikes are used. A single ARTC standard Westinghouse M23A point machine is used. Operation of the second set of blades is by a single run of rodding from the switch machine. The rodding is adjustable by means of an internally threaded sleeve and includes a compensator for thermal expansion. Locking and detection connections to the switchblades adopt standard AN designs. Rails have zero cant through the common rail changeover and there is standard provision for rail cant transition to 1 in 20 at the adjoining tracks. A Risk Assessment was only completed for the single rodding design (copy attached) as all other components are proven designs.. An independent third party design review was carried out by SKM.																				
8	Performance and Suitability The Common Rail Changeover design conforms to the following standards: <table border="0"> <tr> <td>ARTC Code of Practice</td> <td>Section 1 - Rail</td> </tr> <tr> <td></td> <td>Section 2 - Sleepers & fastenings</td> </tr> <tr> <td></td> <td>Section 3 - Points & crossings</td> </tr> <tr> <td></td> <td>Section 5 - Track geometry</td> </tr> <tr> <td>ARTC Standards</td> <td>TCS-05 - Specification for concrete bearers</td> </tr> <tr> <td></td> <td>TCS-06 - Specification for turnouts & diamonds</td> </tr> <tr> <td></td> <td>TCS-07 - Specification for manufacture of 47 & 53 kg points and crossing components</td> </tr> <tr> <td></td> <td>TCS-09 - Mixed gauge track</td> </tr> <tr> <td>Australian Standards</td> <td>AS1085 Part 1 - Railway track materials - Steel rails</td> </tr> <tr> <td></td> <td>AS1085 Part 14 - Railway track materials - Concrete sleepers</td> </tr> </table> Design documentation attached.	ARTC Code of Practice	Section 1 - Rail		Section 2 - Sleepers & fastenings		Section 3 - Points & crossings		Section 5 - Track geometry	ARTC Standards	TCS-05 - Specification for concrete bearers		TCS-06 - Specification for turnouts & diamonds		TCS-07 - Specification for manufacture of 47 & 53 kg points and crossing components		TCS-09 - Mixed gauge track	Australian Standards	AS1085 Part 1 - Railway track materials - Steel rails		AS1085 Part 14 - Railway track materials - Concrete sleepers
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(i)	Use in other rail networks N/A						
(ii)	Use in the ARTC network N/A						
(iii)	Issues arising from usage of the equipment/system <p>The speed over the changeover will be limited to 60 km/h for the standard gauge and 45 km/h for the broad gauge. The moving point (bladed) design required that gauge detection to be incorporated into the signalling. This is being done at various locations at the approach to the changeover by standard gauge detection technology. A signalling engineering review and Risk Assessment has been carried out by ARTC SC and others to review the rodding suitability from a locking and detection viewpoint.</p>						
(iv)	Changes required to infrastructure or systems for use of the equipment N/A						
9	Reliability <p>The reliability will be as per conventional turnouts, but without the complexity of 'V' and 'K' crossings.</p>						
10	Maintainability <p>A Maintenance Plan has been prepared covering routine inspections. The frequency of routine inspections for most components should be the same as that adopted for the section of adjacent track except for switch operation settings where inspections should be carried out daily initially and then relaxed to normal levels as reliability is proven. See condition below for rodding.</p>						
11	Approval * COMMON RAIL CHANGEOVER ON DUAL GAUGE 1600 mm / 1435 mm TRACK.						
12	Conditions of Approval * ARTC SC to monitor the CRX frequently after commissioning. Detailed records to be kept for the settings and the maintenance regime to be adjusted accordingly as the history is developed.						
13	Does the Originator accept the additional Conditions of Approval as set by the Review Panel: <table border="1"> <tr> <td>Yes</td> <td><input checked="" type="checkbox"/></td> <td>No</td> <td><input type="checkbox"/></td> <td>N/A</td> <td><input type="checkbox"/></td> </tr> </table>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	N/A	<input type="checkbox"/>
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14	Sign off Review Panel: John Furness Tim Calver Ian Domleo	ARTC office use only Date: 3/1/08 Date: 3/1/08 Date: 3/1/08
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Approved by ARTC Safety Committee

11/3/08