

NEW EQUIPMENT & SYSTEM APPROVAL PROFORMA

Ref: 08-08-11-089

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 *

Vossloh Cogifer Turnouts (Track work only)

2 **Originator ***

Name: Ian Domleo

Company: ARTC

3 Introduction *

Main line turnouts incorporating the following features different from current practices:

- Use of UIC60EI rail
- Rail fully canted through turnout except fixed vee crossings
- Crossing angles and turnout dimensions different from current standard turnouts based on 60AS rail
- Turnouts supplied in 4 configurations ie 1 in 12 and 18.5 turnouts provided with fixed and swing nose crossings.

Note: These turnouts are suitable for all current axle load and speeds currently used on ARTC Track.

4 Determination of Need *

This type of main line turnout is a new concept to ARTC. A large number of new turnouts were required for major upgrades on the system and therefore tenders were called on a performance specification. Vossloh Cogifer's bid was considered to be the best all round and it was accepted. Improvements from current standards for this type of turnout are:

No rail twist in changing from 1 in 20 inclination to vertical rail each side of the turnout, as is current practice, thereby eliminating the discontinuity in the rail surface.

The discontinuity in the rail heads caused by the twist in the rails each side of the fixed vee crossing is eliminated in these turnouts as the rail head is planed smooth over the twisted area of the rail.

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) *

- John Furness - Manager Standards
- Tim Calver – Standards & Technical Services Engineer
- Ian Domleo – Senior Track & Civil Engineer
- John Ogilvy – Delivery Manager

7 **Safety**

The design of the turnouts comply with the following track geometry design standards regarding safety:

ARTC Code of Practice, Section 5, Table 5.2B Design Parameters and Limits

ARTC NSW Standard TDS 09 Mainline Track Geometry (gives same limits as ARTC CoP as above)

8 Performance and Suitability

Vossloh Cogifer complied in all aspects of the performance specification (attached) and has provided all documentation including part lists, drawings, procedures and manuals concerning the turnouts. This information is available through the ARTC intranet under New Equipment and System Approvals in the Vossloh Cogifer ftp site.

(i) **Use in other rail networks**

Turnouts manufactured by Vossloh Cogifer have been used for many years in France. Recent installations of turnouts to similar design to the ARTC units are in the Channel Tunnel Rail Link high speed line (300km/h) in the UK.

Other countries where Vossloh Cogifer Turnouts have been used include Singapore, Portugal, Sweden (on heavy haul lines with axle loads up to 30 tonnes with swing nose crossings), Finland, Norway, Belgium. See attached documentation.

(ii) **Use in the ARTC network**

To date approximately 25 Vossloh Cogifer Turnouts have been installed on ARTC track, some minor matters arose which have since been resolved.

(iii) **Issues arising from usage of the equipment/system**

As the geometry of the Vossloh Cogifer turnouts i.e. lead lengths and crossing angles, differ from previous standards, there may be some difficulties in incorporating the turnouts in existing track layouts. This may lead to additional design effort.

(iv) **Changes required to infrastructure or systems for use of the turnouts**

The following ARTC Standards and Engineering Practice Manuals will need to be amended with the introduction of these turnouts:

- ARTC Track & Civil Code of Practice Section 5 Points & Crossings
- ETA-03-02 Supplementary Appendix to ARTC T&C CoP – New Turnouts and Diamonds
- ETD-03-02 Supplementary Appendix to ARTC T&C CoP – Concrete Bearers
- ETG-03-01 General Appendix to ARTC T&C CoP – Points and Crossings
- ARTC NSW Standard LCP 01 Turnout Renewals in Existing Lines
- ARTC NSW Standard LDS 02 Standard Turnouts
- ARTC NSW Standard LDS 03 Turnouts Component Definition
- ARTC NSW Standard LEP 01 Inspection of Turnouts/Diamonds Procedure
- ARTC NSW Standard LEP 02 Examination of Main Line Turnouts and Diamonds
- ARTC NSW Standard TEP 12 Track Examination: Rail Wear
- ARTC NSW Standard TES 04 Rail Head Loss Limits
- ARTC NSW Manual RC 2304 Field Replacement of RBM Crossing Inserts

9 **Maintainability**

The turnouts are compatible with current maintenance regime.

10 **Cost Benefit**

Costs compared to conventional:

Capital Cost – Vossloh Cogifer turnouts cost less

Installation Cost – Different geometry and dimensions so will cost more to install when replacing like for like (Estimate \$20,000 extra but would depend on the site). For new installations, cost of installation is the same.

Signalling Equipment – Capital cost of the signalling equipment is less. Minor issues being addressed regarding installation.

Maintenance Costs – On going maintenance cost expected to be less due to the improved geometry (canted rail) Maintenance cost of signalling equipment expected to be similar to existing.

Benefits – The geometry of these turnouts is superior to conventional turnouts and worldwide experience indicates longer life and less maintenance.

11 **Approval ***

This approval covers the Vossloh Cogifer turnouts to the four configurations referred to in Section 3.
These turnouts are approved for use network wide.

12 **Conditions of Approval ***

1. Engineering (Track & Civil) Instruction ETI-03-05 concerning initial grinding of Manganese Steel Fixed Nose Crossings must be complied with
2. Ongoing technical support from Vossloh Cogifer Australia is required.

13 **Does the Originator accept the additional Conditions of Approval as set by the Review Panel:**

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	<input type="checkbox"/>
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14 **Sign off**

ARTC office use only

Review Panel:

John Furness

Tim Calver

Ian Domleo

John Ogilvy

Date:

15/2/08

Date:

15/2/08

Date:

18/2/08

Date:

15/02/08

Approved by ARTC Safety Committee

11/3/08