

Remediation Guideline
Defect ID: ST4-473

Asset: 716 Rejects Bin
Location: West side compression beam

Purpose: This document outlines the governance framework, procedures, and compliance requirements for the Replace of the Steel Beam (Defect ID: ST4-473) on 716 Rejects Bin located at West side compression beam. The repair process addresses structural damage caused by continuous mining operations and degradation over time, ensuring compliance with Australian Standards.

Scope: The guideline involves the replacement of the existing Steel Beam with new components, followed by post-repair inspection and testing, and the application of protective coatings in compliance with relevant Australian Standards. All activities shall be undertaken to restore structural integrity and ensure safe operation of the 716 Rejects Bin.

Asset Code: 716 Rejects Bin

Reference Drawings:

- J641MCA001-13

MATERIAL RISKS, HAZARDS AND CONTROLS

Risk	Description of Risk	Critical Controls
 Hot Conditions	Hot conditions	Consider the local site conditions and assess the risk of heat stress and dehydration. Follow the prescribed procedure, assess the risks associated with working in hot conditions and implement control measures plus any rescue or first aid measures.
 Trip	Uneven or loose ground	Visually check the work area prior to commencing task and remove any trip hazards.
 Acoustic	Loud noises	Wear (double) hearing protection as required.
 Extreme Weather	Extreme weather incident	Develop and implement severe weather policies, ensure access to shelter, and provide training for weather-related emergencies.

ADDITIONAL PPE REQUIRED

										
X	X	X	X		X	X	X	X		

SPECIFIC COMPETENCIES, KNOWLEDGE AND SKILLS REQUIRED**1. Structural and Welding Personnel**

- Proficiency in AS/NZS 1554 welding standards for structural repairs.
- Knowledge of oxy-fuel and plasma cutting techniques for structural modifications.
- Experience in material thickness assessment and patch reinforcement.

2. Site Engineers and Inspectors

- Understanding of AS 4100 steel structure requirements for column installations.
- Competency in non-destructive testing (NDT) to assess weld integrity.
- Knowledge of load-bearing principles and steel member replacements.
- Ability to interpret structural drawings and verify compliance during structural repairs.

3. Safety Officers and Risk Management Personnel

- Certifications in risk assessment methodologies and emergency response planning.
- Familiarity with hot work permitting, atmospheric monitoring and site safety protocols.

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TOOLING AND EQUIPMENT REQUIRED

Removal Equipment

Angle grinder

Cutting torch

Installation Equipment

Crane

Trolley

Clamps

Welding machine

DEFECT INFORMATION

Description

Permanent deformation was identified, likely caused by a mechanical impact or an excessive load. This deformation significantly reduces the structural element's stability, increasing its susceptibility to buckling.

Risk Rating

Major [14]

DEFECT INFORMATION



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REMOVAL AND REPAIR OF DAMAGED STRUCTURAL MEMBERS

Phase 1: Pre-Tasks

Conduct a Job Safety Analysis (JSA) review focusing on the risks associated with working at heights and handling heavy structural components.

Set up scaffolding with secure access and ensure it complies with AS/NZS 1576 (Scaffolding) standards.

Inspect all lifting and rigging equipment for integrity and compliance with AS 4991 (Lifting Devices).

Verify the dimensions and specifications of the new steel beam against the engineering drawings to ensure compatibility.

Establish a clear communication protocol among team members to maintain safety and coordination during the replacement process.

Phase 2: Removal Phase

Isolate the area around the damaged beam and apply necessary signage and barriers to ensure safety.

Carefully detach any connected elements or fixtures from the damaged beam using appropriate tools, ensuring no additional stress is placed on the structure.

Use a crane or appropriate lifting device to support the weight of the beam before removal, ensuring all rigging practices comply with AS 4991.

Mark and cut the beam 1 m from each end connection, then lower the removed section safely.

Inspect the vacated area and adjacent connections for any signs of damage or wear.

Phase 3: Assessment Phase

Examine the support points and the foundation where the beam was installed for any signs of misalignment or structural weakness.

Check for any residual deformations or damages in the surrounding steelwork that may affect the new installation.

Confirm over-plate dimensions and material compliance with the drawings and AS 4100.

Phase 4: Cleaning Phase

Clean the installation area, removing any debris, rust, or old paint using wire brushes and scrapers to prepare for the new installation.

Apply a rust inhibitor to the cleaned surfaces to prevent future corrosion, ensuring compatibility with the existing steel structure.

Phase 5: Installation Phase

Position and align the new section between existing stubs.

Secure the beam temporarily with appropriate clamps and verify alignment using precision levels and laser measuring tools. Fit over-plates to flanges and webs at both ends.

Weld over-plates in accordance with AS/NZS 1554.1, following the approved welding sequence.

Conduct a final inspection of the welds and coatings, verifying adherence to AS/NZS 1554.1 and coating manufacturer's specifications.

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Remove weld spatter and clean welded areas.

Phase 6: Finishing Phase

Apply a protective coating to the new beam and any exposed steel surfaces, following the site-specific corrosion protection system.

Ensure the coating is evenly applied and allow it to dry to the manufacturer's recommended time before final inspection.

Remove all scaffolding and access equipment from the site, ensuring the area is clear of tools and materials.

Conduct a final structural inspection to confirm the integration of the new beam with the existing structure.

Document the replacement process, updating structural drawings and maintenance records.

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MATERIAL LIST

Item	Dimensions	Quantity	Total Cost
Steel Grade 300 UB610	6m	1	\$ 9450,00
GMA Garnet 30/60 mesh	1m2	-	\$ 80,00
Welding Wire E7018	5kg	-	\$ 250,00
Structural Bolts M30	-	4	\$ 60,00
Primer (Zinch-rich Epoxy) Intermediate (Epoxy) Topcoat (Polyurethane)	1m2	-	\$ 70,00

LABOUR COST

Labour	Hours	Total Cost
General Labour	24	\$ 2160,00
Painter Labour	16	\$ 1440,00
Sandblasting Labour	24	\$ 2880,00
Rigger Labour	24	\$ 3060,00
Dogger Labour	24	\$ 2700,00
Boilemaker Labour	24	\$ 3240,00

COSTS SUMMARY	\$	AUD
Material Cost	\$	9910,00
Indirect Material Cost	\$	5135,00
Labour Cost	\$	15480,00
Indirect Labour Cost	\$	7234,80
Total Cost	\$	37759,80

PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	6000.00	J641MCA001-13-FP	NEW MEMBER 610 UB 101
2	1000.00	J641MCA001-13-FP	EXISTING 610 UB 101
3	1000.00	J641MCA001-13-FP	EXISTING 610 UB 101
4	2	J641MCP001-13	PLATE 10mm
5	4	J641MCP002-13	PLATE 16mm

GENERAL ASSEMBLY NOTES:

1. ALL STEEL TO CONFORM WITH AS3678-250 & AS3679-300 U.N.O.
2. ALL BOLTS TO BE 8.8 STRUCTURAL U.N.O.
3. ALL LOOSE BOLTS TO BE WIRED TO ASSEMBLY.
4. PRIOR TO ASSEMBLY ALL PINS, BOLTS, THREADS & MACHINED SURFACES TO BE COATED IN NEVER SEIZE LUBRICANT, EXCEPT BEARING BORES.
5. ANY MOVING PARTS, (STEEL ON STEEL), TO BE GREASED.
6. DO NOT OBTAIN DIMENSIONS BY SCALING FROM THE DRAWINGS.
7. ALL DIMENSIONS ARE IN MILLIMETRES.
8. BOLT INSTALLATION ACCORDING TO AS/NZS 5131.
9. SEE THE DOCUMENT "J641-Remediation Guideline Defect" BEFORE CONSTRUCTION.

GENERAL DETAIL NOTES:

1. LINEAR DIMENSIONS 100mm AND UNDER TO BE WITHIN $\pm 1.0\text{mm}$
LINEAR DIMENSIONS OVER 100mm AND UNDER 500mm $\pm 2.0\text{mm}$
LINEAR DIMENSIONS OVER 500mm TO BE WITHIN $\pm 3.0\text{mm}$
ANGULAR DIMENSIONS $\pm 0.25^\circ$ U.N.O.
2. ALL FLAME CUTTING TO BE MINIMUM OF 25 um OR CLASS 2 U.N.O.
3. REMOVE ALL BURRS AND SHARP EDGES.
4. VERIFY ALL DIMENSIONS ON FIELD BEFORE MANUFACTURING AND INSTALLING.

SIDE VIEW
SCALE 1 : 10