A Division of Transnet SOC Limited

FLEET PLANNING

WORK INSTRUCTION

SAMPLE TESTING PROCEDURE FOR XB-5, 8, 9,10, 11, 12, 13, & 14 TANK WAGONS :2024/2025

Compiled & approved by:

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(Engineering Technician)

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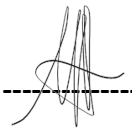
31 January 2024

Accepted by:

R.S. Maemu

(Technical Fleet Owner)



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31 January 2024

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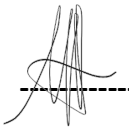

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31 January 2024

W. Makonano

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05/03/2024

Circulation Restricted To: Transnet Freight Rail

Transnet Engineering

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Revision Table

Revision #	Clause	Description of revision	Date Issued
Rev 00	1.7, 1.8		13 February 2018
Rev 01	1.8; 1.9; 1.17; 3.1	Updated drawing(s) and/or specification(s)	24 February 2020
Rev 02	1.1; 1.2; 1.3;1.7; 2.0; 3.0; 4.0; 5.0	Updated statements and procedures	01 Aug. 22
Rev 03	1.1.	New statement	28 Nov. 22
Rev 03	5.2	Updated statements (removed spring washers)	28 Nov. 22
Rev 04	2.10.	Removal from service of wagons with cracks on Tank or in welds	31 January 2024

- **The following work should be performed when XB-type wagons are received for Sample Testing.**
- **Please take note: The Sample Test is to verify the integrity of the vessels.**
- **See drawing NO.: W1/20017 [XBJ5]**
  : A0/00/02001 [XB-8]
  : W001/D017 [XB-9]
  : W001/V008 [XBJ-10]
  : W001/D063 [XBJ-11]
  : W001/D084 [XBLJ-12]
  : W001/F040 [XBLJ-13]
  : W001/F040 [XBLJ 14

ALL WAGONS MUST BE VISUALLY INSPECTED FOR NEGATIVE CAMBER, TWISTED UNDERFRAME AND COLLISION DAMAGE AND OTHER DAMAGES FOUND UPON SEPARATING WAGON BODY FROM THE BOGIES. ALL THESE DAMAGES MUST FIRST BE APPROVED BY THE TFO OFFICE, BEFORE TE CAN CONTINUE WITH THEM AND THE SAMPLE TEST OR LIGHT REPAIR

1.0.	WORK TO BE PERFORMED ON XB SAMPLE TEST TANK WAGONS
1.1.	Remove all residual of product inside the tank wagons. Prepare the tankers for light repair inspection; remove all the sumps on XB-8, 9, 11, 12, 13, 14 and send the sumps shot basting and primer coating. Note: primer coating must not be done on the sump flange contact surfaces.
1.1.1.	Ensure that all the barrel tie down bolts are secure. Remove the barrel tie down bolts that have visible wear & replace them.
1.2.	Send the sumps for surface preparation of the flange contact surfaces.
1.2.1.	Ensure flange contact surfaces and flange holes are free of debris, corrosion, and other material.
1.2.2.	Lightly sand flange surface to ensure effective adhesion of silicone.
1.2.3.	Ensure flange surfaces are true and square.
1.3.	Remove butterfly valves and Storz coupling seals.
1.3.1.	Remove debris, corrosion, and other material from barrel flange surfaces and holes
1.3.2.	Lightly sand flange surface to ensure effective adhesion of silicon
1.4.	Hydro clean (water jet blasting) the top dished ends on the inside and outside.
1.5.	Shot blast the outside of the top dished ends and paint with primer.
1.6.	The complete vessels must be visually inspected by the AIA for any pit marks or mechanical damage.
1.7.	Conduct pre-inspection of the flanges (Section 3), fit new aeration pads (Section4) and replace the sumps according to tightening sequence (Section 5). Fit new butterfly valves, storz coupling seals and safety relief valves (SRVs). Fit SRV anti-theft bracket.
1.8.	Clean the non return valve and test for functionality. Remove Glen 40 & Glen 50 valves and replace with new valves. Remove old discharge pipes and cover, replace with new type which should be in accordance with Drawing **BFX_3885_A000_B**.
1.9.	Fit chromedec danger signs per drawing No. **RS_A052_001_A97_A**.
1.10.	Send wagon to the test/inspection center.

1.11.	Repair all pit mark and mechanical damage on top dish by means of welding and in accordance with a Pressure vessel code.
1.12.	Replace all the dome seals.
1.13.	Pressure tests the wagon and repairs all leaks – see testing procedure
1.14.	Test the safety valves for functionality.
1.15.	If the wagon passed pressure test, the AIA must hard stamp the data plate and issue a certificate.
1.16.	Repair/ replace all damaged steps, commode handles, and ladders.
1.17.	If tow hooks found broken or damaged, replace the damaged tow hooks and fit tow hook gusset for strengthening of tow hook. Drawing no: **RS_A057_001_379.**
1.18.	The Approved Inspection Authority to perform Radio graphic testing and Magnetic Particle Inspection on the vessels
1.19.	After the tests have been performed – send the wagon for touch-up paint and stencilling. Stencilling must be done according to drawing: **RSA067_001_A97 for XBJ-5** **RSA068_001_A97 for XB-8** **RSA068_001_A97 for XB-9** **RSA069_001_A97 for XBJ-10** **RSA052_001_A97 for XBJ-11** **RSA052_001_A97 for XBLJ-12** **RSA052_001_A97 for XBLJ-13** **RSA052_001_A97 for XBLJ-14** **Note: Remove the Spoornet logo and paint the new Transnet logo in position of the old Spoornet logo.**

2.0.	PNEUMATIC PRESSURE TEST PROCEDURE This test must be conducted by the AIA.
2.1.	Test safety release valves for functionality.
2.2.	Close and secure hatch covers
2.3.	Open all air cocks
2.4.	Open all the discharge valves
2.5.	Close all the 40 mm pressure release valves
2.6.	Couple air supply and test equipment to the wagon.
2.7.	Open the air supply
2.8.	All personnel working in the vicinity must be warned by means of a siren if the pressure in a tank wagon exceeds the working pressure.
2.9	It must be assured that there is airflow to all the vessels by opening and closing the pressure release valves, if not find the cause of the problem and rectify.
2.10	Should cracks appear in a tank or in the welds on a particular wagon, that wagon should be considered to have reached the end of its fatigue life and should be immediately removed from service as recommended by report **#BBH6490** from Technology Management.

3.0.	PRE-INSPECTION OF FLANGES
3.1.	Check conditions of flange surfaces for corrosion, wear, debris; surfaces must be true and square.
3.2.	Check conditions of holes; must be kept clean, corrosion-free and undamaged.

4.0.	AERATION PADS FITTING PROCEDURE
4.1.	Check aeration pads for defects. The aeration pads holes must be perfectly aligned with the sump holes; do not use aeration pad if not perfectly aligned.
4.2.	Apply high durability silicone to both the sump and barrel flange surfaces.
4.3.	Ensure sufficient silicone is applied consistently, with a steady bead on the entire flange surfaces.
4.4.	Perfectly align and fit the aeration pad. “Fluitex E800” Aeration pad must be evenly stretched to ensure no slackness or rippling effects occur.
5.0.	TIGHTENING SEQUENCE
5.1.	Check flange alignment; flange faces must be parallel and flange bolt holes must be aligned.
5.2.	Insert bolts from below and hand-tighten all the nuts to ensure 2-3 threads are visible above the top of the nuts. Use self-locking nuts (e.g., Nyloc nuts) to maintain the required torque value over time.
5.3.	Torque bolts/nuts in a clockwise “SPIRAL” pattern to the required toque value of 210 Nm as shown in Figure 1. Start at Position 1 and move sequentially up to Position 29. Repeat this sequence three (3) times as follows:
5.3.1.	Using a torque wrench, tighten to a maximum of 30% of the required torque value (approximately 60 Nm). Check that flange is compressed uniformly.
5.3.2.	Using a torque wrench, tighten to a maximum of 60% (approximately 120 Nm). Check that flange is compressed uniformly.
5.3.3.	Using a torque wrench, tighten to 100% of the required torque value, 210 Nm.

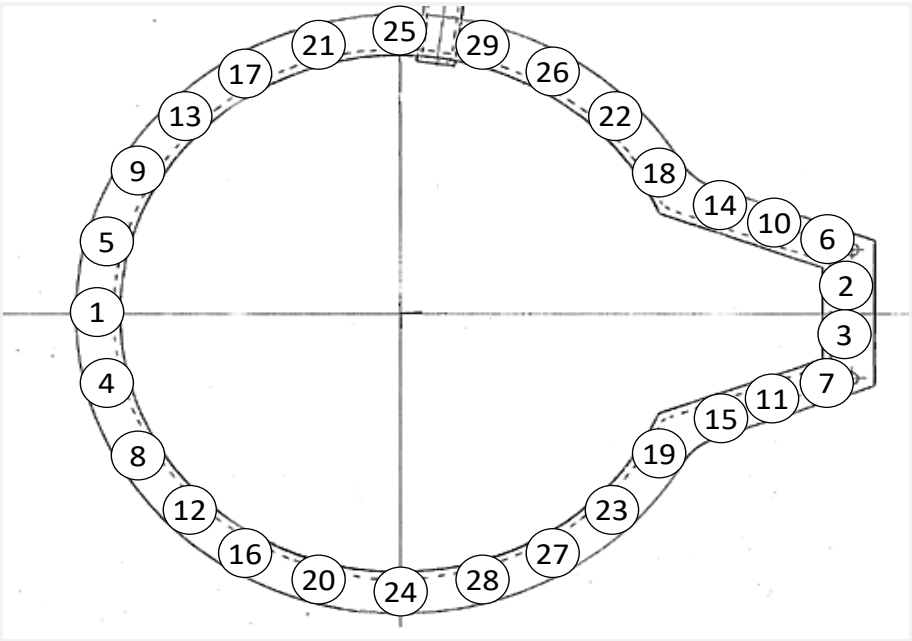

Figure 1: Illustration of 'Spiral Pattern' for tightening sequence of bolts/nuts

6.0. MISCELLANEOUS

6.1. Fit VIS Transponder bracket according to the latest specification.

Fit the VIS Transponders in the centre of sole bar in accordance with specification **OPS_WAG_NAT_WI_003_Rev 02**, after wagons have been painted according to specification RSE/TE/PRO/0133.