Train Inspection Procedure

PCE-212

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VERSION CONTROL

Reference	Reason	Date
1.0	Initial creation Replaces: • WI-418 Conducting Brake Holding Tests (HT) • WI-419 Conducting General Train Inspections • WI-420 Conducting Modified or Partial Train Inspection • WI-421 Conducting Full Train Inspection (FX)	18/04/2016
2.0	Peer review	20/05/2016
3.0	Peer review with train crew, locomotive and wagon maintainers, managers and supervisors	06/06/2016
4.0	Amendment to AX, DX and EX Definitions and reference documents updated	11/08/2016
5.0	Dangerous goods rail segregation chart added as an appendix Section 19, Dangerous Goods added	13/10/2016
6.0	Section 16.2 amended to specify brake shoe type Section 16.3 referring to specific brake shoes for bulk grain trains deleted.	13/12/2017
7.0	Review and Audit Remove Section 5 Calibration of Gauges Change 5.5 If a train inspection is performed in two or three parts and the air and mechanical examination are performed at separate times, a train brake certificate is to be issued for all portions of the examination. To Show If a train inspection is performed in two or three parts and the air and mechanical examination are performed at separate times, 1 train brake certificate is to be issued for compete examination. Remove 8.5 duplicated 6.2 Section 10 Changed from Partial Examination to show Modified Examination 13.4 Changed from A holding test is valid for a period of 24 hours from completion, after which a further test is to be conducted. To show A holding test is valid for a period of 24 hours from completion, or the completion of journey, after which a further test is to be conducted. 8.4 Add, If it is safe to do so. 3.9-word change Replace Vehicle, with rolling stock Replace labelled with carded	18/07/2019

	Remove 8.7 duplicated 8.5	
8.0	Reviewed & Updated as an action from the 3966 Derailment at Dombarton and business improvements.	01/12/2021
9.0	Modified to include the QLD braking requirements around the last 6 wagons rather than the last 3 wagons in other states.	07/02/2022
10.0	Reordered Sections Updated Section 14 – Full Continuity Test with Gauge Created Section 15 – Full Continuity Test without Gauge Created Section 21 – Train Inspection Certificate Amended QLD to Queensland Rail managed network throughout document General Review	27/04/2022

1. AIM

1.1. QLRS is committed to fostering a work culture conducive to creating a safe working environment for all employees, contractors and visitors at QLRS facilities.

1.2. QLRS has developed this document to define train inspection procedures that QLRS employees and contractors are to follow.

2. DEFINITIONS

2.1. Terminology as per AS4292, section 1.

2.2. Terminology as per AS4292, section 3.

2.3. Terminology as per AS4292, section 5.

2.4. Terminology as per ROA Manual, section 5.

2.5. Track Access Provider Minimum Operating Standards for Rollingstock.

2.6. Track Access Provider Train Operations Manual.

3. SAFETY

3.1. QLRS is committed to providing a safe workplace and aims to prevent accidents or incidents.

3.2. Only competent employees and contractors are permitted to conduct a train inspection.

3.3. Whenever a competent person identifies failures or non-compliances during a train inspection, they are to immediately contact the QLRS Customer Service Centre (CSC), Shift Manager (or their nominee) and provide details.

3.4. It is imperative that the correct tools and gauges are used to conduct some aspects of train inspections.

3.5. If a locomotive is not attached during the train inspection, a red flag is to be placed on the lead vehicle at both ends of the rake of rollingstock being inspected. If the train inspection is performed in a dead-end siding, a red flag can be placed on the lead vehicle only.

3.6. Whenever a unit of rolling stock is found to have a red flag attached, the unit of rolling stock is not to be interfered with until the person who placed the flag has removed it or authorised its removal.

3.7. Before commencing any train inspection, the competent employee is to contact the train crew and establish a clear line of communication.

3.8. Before commencing any train inspection, the competent employee is to apply the independent brake and remove the locomotive reverser and secure it in the reverser receptacle. If there is no reverser receptacle, the reverser is to be removed.

3.9. If rolling stock is inspected and found to have a defect, the rollingstock is to be carded accordingly.

3.10. Extreme care is to be taken when coupling or uncoupling air hoses between units of rolling stock.

3.11. During the train inspection, personnel should avoid climbing over or under rollingstock and, if necessary, walk around vehicles wherever possible.

3.12. Extreme care is to be taken when applying or releasing hand brakes as the hand brake wheel or lever can cause serious injury if not applied or released correctly.

3.13. Personnel are to stand in a safe location when conducting roll by inspections.

4. FX TRAIN INSPECTION (FULL EXAMINATION)

4.1. An FX Train Inspection is the process of examining and evaluating the suitability of a unit of rolling stock for safe travel and determining its mechanical and air brake condition.

4.2. An FX train inspection can only be performed by a competent person. A brake test certificate is to be signed by the competent person who conducts the train inspection.

4.3. Every train operating on a track section is to have a train inspection certificate that covers all units of rolling stock on that train, issued and signed by the competent person.

4.4. During an FX train inspection, all elements listed in Track Access Provider - *Minimum Operating Standards for Rollingstock* and the Track Access Train Operations Provider Manual/s are to be inspected for their adjustment, condition, wear limit and suitability for safe travel to their destination without incident.

4.5. If the train inspection is performed in two or three parts and the air and mechanical examination are performed at separate times, one train brake certificate is to be issued for compete examination.

4.6. In addition to a train inspection, a holding test (air brake retention test) is to be performed on the last three vehicles or the last three control valves of the train.

4.6.1. On Queensland Rail managed network, this will be the last 6 wagons or the last 6 control valves. The identification details of these wagons are to be recorded on the train inspection certificate.

4.7. During the train inspection, all vehicles are to be inspected and a brake pipe leakage test conducted.

4.8. During the train inspection, an approved air test device or the locomotive brake pipe air pressure gauge is to be used to conduct the test.

4.9. During all train inspections, air hoses are to be attached with the air supplied by a locomotive or portable air supply device continuously throughout the train.

4.10. Brake pipe air hoses are to be connected continuously throughout the train. Where these are duplicated (Bifurcated) on wagons, only one is to be connected with the other secured by the dummy coupling.

4.11. Where fitted, Main Reservoir air hoses are to be connected continuously throughout the train.

4.12. Air hoses not in use are to be connected to the dummy couplings (where provided) on the end of the wagon or the locomotive.

5. GX TRAIN INSPECTION (GENERAL INSPECTION)

5.1. The purpose of the GX train inspection is to visually examine the adjustment, condition and/or security of a limited group of major components in each wagon in the train consist (unit train) as described in Track Access Provider - *Minimum Operating Standards for Rollingstock* and the Track Access Train Operations Provider Manual/s.

5.2. A GX train inspection includes a general mechanical examination of the wagons on the train, confirmation of the security of loading on the train, a functional test of the train braking system and the issue of a train inspection certificate.

5.3. A GX train inspection can only be performed by a competent person. A brake test certificate is to be signed by the competent person who conducts the train inspection.

5.4. Every train operating on a track section is to have a train inspection certificate that covers all units of rolling stock on that train, issued and signed by the competent person.

5.5. If the train inspection is performed in two or three parts and the air and mechanical examination are performed at separate times, one train brake certificate is to be issued for compete examination.

5.6. In addition to a train inspection, a holding test (air brake retention test) is to be performed on the last three vehicles or the last three control valves of the train.

5.6.1. On Queensland Rail managed network, this will be the last 6 wagons or the last 6 control valves. The identification details of these wagons are to be recorded on the train inspection certificate.

5.7. During the train inspection, all vehicles are to be inspected and a brake pipe leakage test conducted.

5.8. During the train inspection and where provided, an approved air test device or the locomotive brake pipe air pressure gauge is to be used to conduct the test.

5.9. During all train inspections, air hoses are to be attached with the air supplied by a locomotive or portable air supply device continuously throughout the train.

5.10. Air hoses not in use are to be connected to the dummy couplings (where provided) on the end of the wagon or the locomotive.

6. AX TRAIN INSPECTION (ARRIVAL ROLL BY EXAMINATION)

6.1. An AX train inspection is the process of visually and audibly inspecting the condition of units of rolling stock as they arrive at a location en-route or at a terminal destination.

6.2. Whenever possible, an AX train inspection is to be conducted as a train arrives.

6.3. The purpose of an AX train inspection is to identify potential problems with a view to rectification before the next scheduled service for that unit of rolling stock.

6.4. Competent persons performing AX train inspection are to position themselves safely to observe all of the units of rolling stock as they pass. In remote areas, a qualified person is to conduct the inspection on one side of the train.

6.5. Any items identified as requiring repair, maintenance or action during the AX train inspection are to be either rectified by the competent person or reported to the CSC to arrange repairs.

6.6. During an AX train inspection, the competent person performing the inspection is to be extremely vigilant to observe or hear defects on units of rolling stock.

7. DX TRAIN INSPECTION (DEPARTURE ROLL BY INSPECTION)

7.1. A DX train inspection is the process of visually and audibly inspecting the condition of units of rolling stock as they depart the originating or an en route location.

7.2. A DX train inspection should be performed whenever it is possible to do so.

7.3. The purpose of a DX train inspection is to identify potential problems before rolling stock enters the rail network.

7.4. Competent personnel qualified to perform a DX train inspection are to position themselves safely to observe all of the units of rolling stock as they depart from the location. In remote areas, the competent person is to inspect one side of the train and then return to the

locomotive walking down the opposite side of the train to complete the inspection, if it is safe to do so.

7.5. If any items are identified as requiring repairs, maintenance or action during the DX inspection, the competent employee performing the DX inspection is to immediately contact the train crew, stop the train, and arrange for the unit of rolling stock to be repaired, appropriately carded for repairs, or placed in a refuge road or siding.

7.6. The item/s identified as requiring remedial repairs, maintenance or action are to be either rectified by the competent employee or reported to the QLRS CSC to arrange repairs.

8. EX TRAIN INSPECTION (EN-ROUTE VISUAL ROLL BY INSPECTION)

8.1. During an EX train inspection, to the extent possible, every unit of rolling stock in a consist is to be visually and audibly inspected to identify any condition that falls outside the technical requirements for the safe operation of that unit.

8.2. An EX train inspection should be performed whenever it is possible to do so.

8.3. EX train inspections are to be conducted by a suitably qualified person.

8.4. EX train inspections are to be conducted as trains cross or pass in sidings, stations, yard and running lines. The extent of the visual inspection will depend on the speed of the train and the location of the inspection.

8.5. Competent employees performing EX train inspections are to position themselves safely to observe all units of rolling stock as the train passes.

8.6. If items are identified as requiring remedial repairs, maintenance or action during the EX inspection, the competent employee is to immediately contact the passing train crew and advise them of the circumstances.

8.7. The item/s identified as requiring remedial repairs, maintenance or action are to be either rectified by the competent person or the train crew are to manage the incident in accordance with Network Operating Procedures.

8.8. If a unit of rolling stock is found to be defective at the time of a EX inspection, a QLRS incident report is to be completed and forwarded to the QLRS CSC who will record the defect into QTMS.

9. MX TRAIN INSPECTION (MODIFIED EXAMINATION)

9.1. An MX train inspection is conducted when locomotives are changed or when loading is attached or detached from a train.

9.2. An MX train inspection includes a:

- Train continuity test
- Brake pipe leakage test
- GX general mechanical and air inspection of the attached wagons
- If required, a holding test

9.3. If required, the brake test certificate should be completed for the attached wagons.

10. HANDBRAKES

10.1. Refer to PCE-207 Shunting and Marshalling.

11. BRAKING REQUIREMENTS ON THE REAR VEHICLES OF A TRAIN

11.1. The last three wagons (or last 3 control valves) of a train are to have operative air brakes and handbrakes.

11.1.1. In Queensland Rail managed network, this will be the last 6 wagon or the last 6 control valves.

11.2. If either the airbrake or handbrake becomes inoperative on any of these wagons, the wagon is to be repaired or the train remarshalled to meet the above requirement.

11.3. If a wagon develops a defect in transit, arrangements are to be made with the network access provider to run the train at reduced speed to the nearest location for remarshalling.

11.4. The number and class of the last three wagons/control valves wagons on a train (or 6 in Queensland Rail managed network) must always to be recorded on the train inspection certificate.

11.5. In some circumstances and if possible, trains should have double ended holding tests.

12. HOLDING TEST

12.1. A holding test is to be performed on the last three vehicles/control valves of a train, or in Queensland Rail managed network, the last 6 wagons or control valves

12.2. The holding test is to be conducted in accordance with the following table.

12.3. The holding test is to include additional time for wagons attached en-route.

12.4. A holding test is valid for a period of 24 hours from completion, or the completion of journey, after which a further test is to be conducted.

Length of train and minutes the air brake will remain applied

Train Length Metres	0 - 100	101 - 200	201 - 300	301 - 400	401 - 500	501 - 600	601 - 700	701 - 800	801 - 900	901 - 1000
Holding Time minutes	13	16	19	22	25	28	31	34	37	40

Train Length Metres	1001 - 1100	1101 - 1200	1201 - 1300	1301 - 1400	1401 - 1500	1501 - 1600	1601 - 1700	1701 - 1800	1801 - 1900	1901 - 2000
Holding Time minutes	43	46	49	52	55	58	61	64	67	70

13. BRAKE PIPE LEAKAGE TEST (ENTIRE TRAIN)

13.1. A brake pipe leakage test is to be performed on every train.

13.2. The standard brake pipe pressure is 500kPa.

13.3. No train is permitted to depart a terminal location with a brake pipe pressure of less than 425kPa.

13.4. The train brake pipe is to be fully charged with a brake pipe pressure of no less than 425kPa on the last vehicle.

13.5. After ensuring that there is 500kPa in the brake pipe and equalising reservoir, the train driver is to make a 100 kPa brake pipe reduction using the automatic brake valve. When the brake pipe pressure has equalized, the driver is to isolate the brake stand using either the brake valve isolating cock or the MU valve.

13.6. The driver is to monitor the brake pipe for one minute to make sure that there is no leakage exceeding 35 kPa.

13.7. If the drop-in brake pipe pressure exceeds 35 kPa, the driver is to follow the fault reporting procedure.

14. FULL CONTINUITY TEST WITH GAUGE – PREFERRED METHOD

14.1. An air continuity gauge is to be used to check the air pressure in the brake pipe in the last vehicle on a train.

14.2. Only air continuity gauges provided by QLRS are to be used

14.3. The air continuity gauge is attached to the brake pipe hose on the last wagon

14.3.1. The brake pipe cock must be closed when attaching the gauge

14.4. Once attached, the brake pipe cock is to be slowly opened whilst the brake pipe hose is held securely

14.5. Once the gauge has equalized, the person conducting the train inspection is to request the Driver to make a full service application (150kpa reduction).

14.6. The person conducting the train inspection is to monitor the gauge and record the reduction observed at the rear of the train and the time of the test on the brake certificate

14.7. Once completed, the person conducting the train inspection is to request the Driver to release the brakes

14.8. The person conducting the train inspection is to monitor the gauge and observe the brake pipe pressure increasing

14.8.1. The brake pipe pressure at the rear of the train should not be less than 425kpa when the lead locomotive is showing the brake pipe as fully charged

14.9. Once the Full Continuity Test is complete, the rear brake pipe cock is to be closed, the release valve on the continuity gauge opened and the gauge removed from the brake pipe hose

15. FULL CONTINUITY TEST WITHOUT GAUGE

15.1. The Driver is to fully charge the brake pipe

15.2. The person conducting the train inspection is to observe that the last three wagons have their brakes released

15.3. The person conducting the train inspection is to request the Driver make to make a full service application (150kpa reduction).

15.4. The person conducting the train inspection is to observe the last three wagons brakes apply

15.5. Once completed, the person conducting the train inspection is to request the Driver to release the brakes

15.6. The person conducting the train inspection is to observe the last three wagons brakes release

15.7. The details of the test are to be recorded on the Train Inspection Certificate

15.7.1. The person conducting the train inspection is to record that no gauge was available in the comments

16. MAIN RESERVOIR CONTINUITY TEST (ENTIRE TRAIN)

16.1. Where fitted, Main Reservoir air hoses are to be connected continuously throughout the train.

16.2. A Main Reservoir continuity test is to be performed on each train where the Main Reservoir is continuous throughout.

16.3. The standard Main Reservoir pressure is between 725kPa and 800kPa.

16.4. No train is permitted to depart a terminal location with a Main Reservoir pressure of less than 725kPa.

16.5. This pressure is to be recorded on the train brake certificate.

17. BRAKE BLOCK TYPES

17.1. Brake blocks are to be replaced in accordance with QLRS rolling stock procedures.

17.2. Brake blocks shall be of the appropriate type for the vehicle i.e. high, medium or low friction.

18. TRAIN INTEGRITY

18.1. If possible during the train inspection, the competent person is to examine every unit of rolling stock on the train and ensure the integrity of the vehicles in accordance with the AS7500 series standards, Track Access Provider - *Minimum Operating Standards for Rollingstock* and the Track Access Train Operations Provider Manual/s l.

18.2. The loading of vehicles is to conform with the rolling stock outlines as per AS7507 – Rolling Stock Outlines and Track Access Provider - *Minimum Operating Standards for Rollingstock* and the Track Access Train Operations Provider Manual/s.

18.3. During the train inspection, the competent employee is to examine the suitability of the wagon, its load and all of its components to ensure the wagons are fit for travel.

18.4. Rollingstock maintainers are to inspect the limits, of wheels and bogies to ensure compliance with the relevant standards. Gauge if required.

18.5. Rollingstock maintainers are to inspect the coupling types, heights and maintenance limits to ensure compliance with the relevant standard.

18.6. Rollingstock maintainers are to apply the highest safety standard if the manufacturer's standard and the Australian Standard differ.

18.7. The condemning limits as stated in the relevant standard are to be applied to all rolling stock.

18.8. All twistlocks are to be inspected to ensure that they are operative and are securing the container to the wagon.

18.9. All containers are to be inspected to ensure that they are seated correctly and are secured in place by four operative twistlocks.

18.10. The roadworthiness of both loaded and empty rolling stock is to be confirmed.

18.11. All mechanical and electrical components on the vehicles are to be examined.

18.12. On freight trains, one wagon in ten may have its brake inoperative or isolated, provided the un-braked train mass does not exceed 10% of the total train mass, excluding the locomotive/s. Two un-braked or isolated vehicles are not permitted to travel marshalled together.

19. END OF TRAIN MARKER (EOTM)

19.1. Every train is to have a functioning EOTM securely positioned on the last vehicle. The EOTM indicates that the train is complete.

19.2. The EOTM is to be functional and capable of operating throughout the entire train journey.

19.3. In some circumstances it may be necessary for a train to carry an ETAS unit. Where an ETAS if fitted, this is to be considered as the EOTM.

20. DANGEROUS GOODS SEGREGATION

20.1. QLRS aims to reduce as far as practicable the risks arising from the transport of dangerous goods by adhering to the standards, requirements and procedures of the ADG Code as they apply to the transport of dangerous goods by rail.

20.2. When inspecting a train consist, train crew are to ensure that dangerous goods have been segregated in the loading in accordance with the Australian Dangerous Goods Code.

21. TRAIN INSPECTION CERTIFICATE

21.1. For QLRS train services, the train inspection details are to be recorded on FM-520 Train Inspection Certificate

21.2. All sections of the form are mandatory and must be completed

21.3. Notes on the use of this form

21.3.1. This form is in sets of three stapled into books of 50 sets.

21.3.2. After the Train Inspection Certificate has been signed by the person performing the train inspection and countersigned by the driver, the copies of the form are to be distributed as follows:

21.3.2.1. Original (white) and duplicate (yellow) copies are to be handed to the driver who must ensure that they are dealt with in accordance with instructions

21.3.2.2. Triplicate (pink) copy is to be retained by the person who performed the train inspection as a record of the condition of the train

21.4. The form is printed on carbonless paper. IT IS ESSENTIAL that the cover (or a sheet of heavy card) is inserted between the set being completed and the next set before any entry is made.