

### Completion Of Heritage Annual Inspection Steam Locomotives

*This cover sheet is to be completed by the inspector for each Heritage Vehicle inspected. The Heritage Vehicle Provider is to provide a copy to ONTRACK.*

Heritage Vehicle number \_\_\_\_\_ presented for inspection by  
\_\_\_\_\_  
*(name of organisation)* passed its Annual Inspection in  
accordance with the requirements of NRSS/11 on \_\_\_\_/\_\_\_\_/\_\_\_\_ and is fit to run on  
*(date of inspection)*

the National Rail System with the following operational restrictions:<sup>1</sup>

---

---

---

---

---

---

---

---

This inspection will expire on \_\_\_\_/\_\_\_\_/\_\_\_\_ *(expiry date)* *(If left blank the inspection will expire in one year. Note that Heritage Vehicles inspected within the date tolerances shown in NRSS/11 retain their inspection anniversary date).*

I am an ***in-house*** / ***independent*** inspector.  
*(delete one).*

Signed by \_\_\_\_\_ \_\_\_\_\_  
*(signature)* *(print name of inspector)*

Notes:

---

---

---

---

---

---

---

---

<sup>1</sup> List only restrictions that need to be conveyed to those involved in operating the vehicle such as speed restrictions, marshalling or other operational requirements.

## Notes

- This form is to be used for all annual inspections or inspections after overhaul.
- This form is to function as a guide to assist in ensuring that all locomotives are inspected to an acceptable and common standard for operation on the National Rail Network.
- Some reference to codes and standards may be required to complete this inspection form.
- All items on this form are to be marked as  
√ - Passed; or X - Failed; or NA - Not applicable
- Any items that have failed are to be included on the Inspection Fault Report included at the end of this form.

## Certifications

<b>Boiler certificate</b> - expires	/	/	
<b>Radio certificate</b> - expires	/	/	
<b>Event recorder certificate</b> - expires	/	/	
<b>Fire extinguisher(s) certificate(s)</b> - expires	/	/	

**Crack & Corrosion Tests** (See B3.1.4.01 - Corrosion, Crack and Structural Inspection)

## Axles

Date of Last Test	/	Distance Run Since Test	km
Limits	10 years		50,000 km

## Crank Pins

Date of Last Test	/	Distance Run Since Test	km
Limits	10 years		50,000 km

## Wheel Spokes

Date of Last Test	/	Distance Run Since Test	km
Limits	10 years		50,000 km

## Side &amp; Connecting Rods

Date of Last Test	/	Distance Run Since Test	km
Limits	10 years		50,000 km

## Frames

Date of Last Test	/	Distance Run Since Test	km
Limits	10 years		50,000 km

## Buffers

Date of Last Test	/	Distance Run Since Test	km
Limits	10 years		50,000 km

## Air Reservoirs

Next Internal Inspection Due:	/	Limits	5 – 12 years
-------------------------------	---	--------	--------------

**Wheel Readings**

Axle	A Side					B Side					Type
	X	Y	V	W	Z	X	Y	V	W	Z	T/S
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
<b>Limit</b>	40†	6	6	14	*	40†	6	6	14	*	

\* See B3.1.1.01 - Mechanical Code for minimum allowed and max variation.

† Unless on last turn, tyres should be programmed for turning when X ≥ 24 to avoid wasting material.

Wheel gauge certification expires:- Date      /      /

Wheel profiles comply with code requirements      YES / NO

Readings Done By:-      Name (print): \_\_\_\_\_

Date:      /      /      Signature: \_\_\_\_\_

**Axel & Wheel Defects**

<b>Wheel profiles within code (see above)</b>	
<b>Looseness on axle</b> (Rust discharge, polishing or disturbance of dirt or rust build-up)	
<b>Loose tyres</b> (Rust discharge, polishing or disturbance of dirt or rust build-up)	
<b>Loose Gibson Rings</b> (Rust discharge, polishing or disturbance of dirt or rust build-up)	
<b>Loose tyre set screws</b>	
<b>Visible cracks in spokes</b>	
<b>Visible cracks on tyres ‡</b>	
<b>Tyre damage</b> (Flats, skids, scaling, spalling or other surface damage) ‡	
<b>Overheating of tyres ‡</b>	
<b>Edge rollover of tyres ‡</b>	
<b>Axle damage</b> (No gouge between the wheels more than 1mm deep. No rubbing.)	

<b>Wheels rubbing on frames</b>	
---------------------------------	--

‡ See B3.1.1.01 - Mechanical Code or NRSS-6, Section 8.5 for maximum permissible limits for this damage.

**Axleboxes & Bearings - Plain**

<b>Side liners secure; wear within limit (max 12mm clearance)</b>	
<b>Oil box covers in place, boxes free of water</b>	
<b>Axlebox cellars packed correctly</b>	
<b>Wheels not rubbing on frame</b>	

**Axleboxes & Bearings - Roller**

<b>Grease discharge from boxes</b>	
<b>Cannon boxes – securing bolts secure</b>	

**Front Bogie**

<b>Springs and hangers</b> - No broken leaves / coils, loose buckles, corrosion, wear & wastage, correctly seated and aligned.	
<b>Safety brackets</b> - Check in place, wear in pins	
<b>Bolster swing links and pins</b> - Wear, security, cracks	
<b>Centre castings</b> – Clearance, security, fretting	
<b>Horns, liners and keeps</b> - Secure, split pins fitted, clearances OK	

**Rear Bogie**

<b>Springs and hangers</b> - No broken leaves / coils, loose buckles, corrosion, wear & wastage, correctly seated and aligned.	
<b>Safety brackets</b> - Check in place, wear in pins	
<b>Centring gear</b> - J class check springs and shaft free to move, Wab and K classes check rockers for wear and damage	
<b>Horns, liners and keeps</b> - Secure, split pins fitted, clearances OK	

**Rods and Valve gear**

<b>Crosshead slipper and side liner wear</b> - See Mechanical Code for limits	
<b>Little end pins</b> - Check fit and wear (1.5 mm max)	
<b>Connecting rod safety strap security</b>	
<b>Wear in side rod brasses</b> - See Mechanical Code for wear limits	
<b>Wedges and strap bolts</b> - serviceable	
<b>Knuckle pins</b> - wear and security; max clearance = 1.5 mm	
<b>Piston rod tight in crosshead, key and safety secure</b>	

<b>Piston rods wear and damage</b> - See Mechanical Code for wear limits	
<b>Valve rods tight in crosshead, key and safety secure</b>	
<b>Valve gear pins, taper pins secure</b>	
<b>Valve gear wear</b>	
<b>Weighbar shaft and bearings</b>	
<b>Power reversers - reversing levers secure, operate freely</b>	
<b>Return crank and bolts</b> - secure	
<b>Roller bearing rod bearing covers</b> - security	

**Locomotive Frames**

<b>Frames</b> - no cracks, damage, loose rivets	
<b>Headstock(s)</b> - Corrosion, damage	
<b>Motion brackets</b> - secure	
<b>Boiler expansion brackets</b> - free to move	
<b>Keep plates</b> - secure	
<b>Axlebox wedges</b> – secure and adjustment correct	
<b>Keep plates</b> - secure	
<b>Axlebox horns and frame</b> - rivets / bolts secure	
<b>Stretchers</b> - bolts / rivets secure	

**Locomotive Spring Gear**

<b>Condition</b> - No broken leaves / coils, loose buckles, corrosion, wear & wastage	
<b>Alignment</b> – Springs correctly seated, springs and hangars correctly aligned	
<b>Compensating beams</b> - secure and free to move	
<b>Adjustment</b> - correct, springs level and square	

**Cowcatchers**

<b>Height</b> -100 - 175 mm (record)	No 1:	mm	No 2 :	mm	
<b>General</b> – no cracks or damage, fastenings secure					

**Drawgear**

<b>Drawbar height</b> -715 – 760 mm (record)	No 1:	mm	No 2 :	mm	
<b>Buffer pins</b> - Intact, diameter $\geq$ 36 mm, slot protector intact					
<b>Hook bridles</b> – Serviceable; prevents the corresponding hook from lifting.					

<b>Drawhooks</b> - No distortion, cracks, hole not more than 48 mm in any direction.	
<b>Kidney links and transition heads</b> - No distortion, cracks, holes $\leq$ 55 mm	
<b>Buffer rests</b> - Not worn so as to restrict buffer movement, fastenings secure	
<b>Buffer straightness</b> - Not be bent more than 25 mm from the centreline measured at the buffer face. Wear marks on face not to extend to edge of face.	
<b>Drawbar sideplay</b> – Max of 50 mm side to side (at headstock). No appreciable end movement	
<b>Drawbar packing</b> – 3 mm minimum thickness, no cracked welds (if welded)	
<b>Janney yokes</b> - No cracks or other damage. Key retaining bolt secure and not excessively worn, carrier plate fastenings secure	
<b>Draft lugs</b> - Undamaged, securely attached, no rubbish between underframe and lugs	
<b>Spring packs</b> - No deterioration, broken coils (spring type), yoke guide pins intact	
<b>Sidechains</b> - Hang well clear of rail, intact, no cracks, excessive wear	

#### Tender / Tanks / Bunkers

<b>Frames</b> - no cracks, damage, loose rivets	
<b>Headstock(s)</b> – no corrosion, damage	
<b>Truss rods, queen posts, cross beams</b> – no corrosion, cracks	
<b>Locomotive to tender drawgear</b> – secure, no damage, springs OK	
<b>Tanks</b> – no water or fuel leaks	
<b>Tanks and bunkers</b> - no excessive corrosion, secure to underframe	
<b>Air and water hoses</b> - serviceable	

#### Tender Bogies

<b>Springs and hangers</b> - No broken leaves / coils, loose buckles, corrosion, wear & wastage, correctly seated and aligned.	
<b>Safety brackets</b> – secure, no damage	
<b>Upper bolster</b> - level, correct height	
<b>Bolster swing links and pins</b> – Wear, security, cracks	
<b>Centre castings</b> – Clearance, security, fretting (no cracks in webs)	
<b>Horns, liners and keeps</b> - Secure, split pins fitted, clearances OK	
<b>Bogie safety chains</b> - secure, chain wear (max 25% of area).	
<b>Float blocks and brackets</b> - secure, no cracks or damage, correct packing	
<b>Float clearances</b> - within limits, no cross cornering (See Mechanical Code for limits)	

<b>Clearance to underframe – within limits</b>	
--	--

**Brakes**

<b>Brake piston travel - within limits</b>	
<b>Brake blocks - wear within limits, even</b>	
<b>Brake shoes – intact, secure</b>	
<b>Brake hangers - condition and wear (max lift of spreaders not to exceed 10mm)</b>	
<b>Brake spreaders and pull rods - pinned and secure</b>	
<b>Brake rigging - Intact. Split pins, washers and pins correctly fitted. Not fouling frames</b>	
<b>Safety straps - intact, secure, not fouling</b>	
<b>Hoses and Brake Cocks - No significant deterioration. Cocks operate smoothly.</b>	
<b>Hand brake - applies and will hold locomotive</b>	
<b>Air reservoirs and mountings – secure, no corrosion, cracks, leaks</b>	
<b>Brake cylinders and mountings – secure, good condition</b>	
<b>Brake Air Test – all tests correctly passed (attach test record)</b>	

**Ashpan / Firepan**

<b>Ashpan / firepan doors - close with no gaps</b>	
<b>Ashpan - sealed with no holes or gaps</b>	
<b>Ashpan door - locks when closed</b>	

**Firebox**

<b>Brick arch - serviceable</b>	
<b>Brick lining (oil burners) - serviceable</b>	
<b>Drop grate - closes correctly and can be secured</b>	
<b>Firebars - no gaps, missing bars, sagging deadbars</b>	

**Smokebox**

<b>Smokebox - sound with no leaks</b>	
<b>Internal steam pipes - sound with no leaks</b>	
<b>Blast nozzle and blower ring - clean and free of carbon</b>	
<b>Superheater and elements - sound with no leaks</b>	
<b>Spark arrestor - fits correctly and secure (max gap 3mm)</b>	

<b>Spark arrestor</b> – no cracks or corrosion holes, wear suitable for further service	
---	--

**Pipework**

<b>Condition</b> - free of leaks, secured to prevent vibration	
<b>Lagging</b> - serviceable	

**Tests in Steam**

<b>Air compressor</b> - mounts secure, no pounding or uneven running	
<b>Safety valves</b> - operate correctly (record)	LH -                      psi    RH -                      psi
<b>Generator and lights</b> - operate correctly (generator voltage = 30 to 36 volts)	
<b>Cab lights</b> - operate correctly	
<b>Cylinder drain cocks</b> - operate correctly	
<b>Injectors</b> - operate correctly	
<b>Lubricator(s)</b> - operates correctly	
<b>All auxiliaries</b> - operate correctly	
<b>Whistle</b> – operates (from both sides of cab)	
<b>Throttle</b> - operates freely and locks in place	
<b>Sanders</b> - feeding correctly and onto rails	
<b>Locomotive</b> - moves without knocks	
<b>Axleboxes</b> – move freely in guides	
<b>Steam leaks</b> - do not obscure vision	

**General**

<b>Fault reports</b> – no outstanding faults	
<b>Steps, ladders and handgrabs</b> – secure, no cracks, corrosion	
<b>Ladders</b> – protective covers intact and lockable, electrical warning signs intact	
<b>Apron plate and hinges</b> – secure, no excessive wear	
<b>Cab seats and fittings</b> – secure, serviceable	
<b>Detonators</b> – minimum number, not time expired (if permanently fitted)	
<b>Flags</b> – minimum red & green flags (if permanently fitted)	



**Inspection Fault Report**

Vehicle ID		Inspection Date	/	/	Page	of
Inspected by - Name		Signature				

<b>Fault Details</b>	Reference		Priority	
<b>Repair Details</b>	Date completed	/	/	
Repaired by -Name		Signature		
Checked by -Name		Signature		

<b>Fault Details</b>	Reference		Priority	
<b>Repair Details</b>	Date completed	/	/	
Repaired by -Name		Signature		
Checked by -Name		Signature		

<b>Fault Details</b>	Reference		Priority	
<b>Repair Details</b>	Date completed	/	/	
Repaired by -Name		Signature		
Checked by -Name		Signature		

**Priority**

- 1 – Vehicle not to run until repairs made.
- 2 – Repairs to be completed as soon as practical but vehicle may run in the interim.
- 3 – Attention required at next shopping or as noted.

Issue	Prepared (P), Reviewed (R), Amended (A)	Approved by	Effective Date
1	P McCallum (P)	Heritage Technical Committee	27 June 2006
2	P McCallum (A)	Heritage Technical Committee	7 May 2007
2.1	P McCallum (A)	Heritage Technical Committee	22 April 2008

### Amendment History

Version	Section	Amendment
Draft		Released 22/12/2005
1.0	General	Added flags and detonators
2.0	Page 1	Revised cover page format
	Page 2	Added or revised crack tests in accordance with B3.1.4.01
	Wheel readings	Added gauge certification and code compliance check
2.1	Page 1	Amended "restrictions" para and added footnote