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 "Heritage Excursions" Heritage.Excursions@kiwirail.co.nz.

Heritage Vehicle number _____ presented for inspection by

_____ passed its Annual Inspection in
(name of organisation)

accordance with the requirements of APIS-11 on _____/_____/_____ and is fit to run on
(date of inspection)

the National Rail System with the following operational restrictions:[1]

_____

_____

_____

_____

_____

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 APIS-11 retain their inspection anniversary date).

I am an ***In-house*** / ***Independent (R.A.I.L)*** inspector.
(delete one).

Signed by _____ _____
(signature) *(print name of inspector*)

Notes:

_____

_____

_____

_____

[1] 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 or are to be noted must be included in the Inspection Fault Report included at the end of this form. Multiple forms may be used and attached

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
3.0	M Hobbs (A) M Wilcox (R) P. Steer (R) A. Wong (R)	Heritage Technical Committee	25 July 2025

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
3.0	Multiple	Multiple Amendments

Sections 1 – 3 to be completed by vehicle operator prior to inspection. Inspector to review and confirm these.

1 Certifications

Boiler certificate – expires Safety valves set Low Pressure _____ psi Medium Pressure _____ psi High Pressure _____ psi		/ /	
Radio certificate – expires		/ /	
Event recorder certificate		/ /	
Fire extinguisher certificate(s) (if permanently fitted)– expires		/ /	
Asbestos Condition Assessment (if applicable)		/ /	

2 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 & 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

Coupler Crack Testing

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

3 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											
Limit	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, wheels 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:

Reviewed By Inspector: - Name (print):

Date: / / Signature:

Sections 4 – 22 to be completed by inspector

4 Axle & Wheel Defects

Wheel profiles within code (see above)	
Looseness on axle (Rust discharge, polishing or disturbance of dirt or rust build-up)	
Loose tyres (Rust discharge, polishing or disturbance of dirt or rust build-up)	
Loose Gibson Rings (Rust discharge, polishing or disturbance of dirt or rust build-up)	
Loose tyre set screws	
Visible cracks in spokes	
Visible cracks on tyres ‡	
Tyre damage (Fl**ats, skids, scaling, spalling or other surface damage) ‡	
Overheating of tyres ‡	
Edge rollover of tyres (none permitted)	
Axle damage (No gouge between the wheels more than 1mm deep. No rubbing.)	
Wheels not rubbing on frames	

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

5 Axleboxes & Bearings - Plain

Side liners secure; wear within limit (max 12mm clearance total side to side)	
Oil box covers in place, boxes free of water	
Axlebox cellars packed correctly	

6 Axleboxes & Bearings - Roller

Grease discharge from boxes	
Cannon boxes – intact, no cracks, bolts secure, front and rear covers lockwired, oil drains lockwired	

7 Front Bogie

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

8 Rear Bogie

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

9 Rods and Valve gear

Crosshead slipper and side liner wear • Crossheads with removable slippers - working clearance < 3 mm • Guide bars on closed type guide bars - clearance due to slipper wear < 3 mm • Old type cross head slippers - no slack allowed	
Little end pins - Check fit and wear (1.5 mm max)	
Connecting rod safety strap security (if fitted)	
Wear in side rod brasses • Wear in split brasses < 1.5 mm • Wear in circular brasses < 2 mm for big end or 1.5 mm for little end, total < 3mm	
Wedges and strap bolts - serviceable	
Knuckle pins - wear and security; max clearance = 1.5 mm	
Piston rod tight in crosshead, key and safety secure	
Piston rods wear and damage - See B3.4.2.04 (1) for wear limits	
Valve rods tight in crosshead, key and safety secure	
Valve gear pins, taper pins secure	
Valve gear wear	
Weighbar shaft and bearings	
Power reversers - reversing levers secure, operate freely, cylinder and mechanism secured against boiler	
Return crank and bolts - secure	
Roller bearing rod bearing covers - security	

10 Locomotive Frames

Frames - no cracks, damage, loose rivets	
Headstock(s) - Corrosion, damage	
Motion brackets - secure	
Boiler expansion brackets - free to move	
Keep plates - secure	
Axlebox wedges – secure and adjustment correct	

Axlebox horns and frame - rivets / bolts secure	
Stretchers - bolts / rivets secure	

11 Locomotive Spring Gear

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

12 Cowcatchers

Height -100 - 175 mm (record)	Front: No 1: mm	Rear No 2: mm	
General – no cracks or damage, fastenings secure			

13 Drawgear

	End	**No 1:**	**No 2:**
Coupler height -715 – 760 mm (record)	mm		mm
Coupler pins - Intact, diameter ≥36 mm, slot protector intact			
Hook bridles – Serviceable; prevents the corresponding hook from lifting.			
Automatic coupler operation (where fitted)- operating lever and locklifter free to move, operating lever undamaged and freely enters locking clip. When coupler is locked, locking block easily drops, bottom of locklifter level with indicator chain /operating lever locks properly (operating lever on coupler).			
Automatic Coupler wear - Use gauges 12050054 B1 and 12050054 B2 for head and gauge 12050054/A for knuckle.			
Coupler rests - Not worn so as to restrict buffer movement, fastenings secure			
Coupler straightness - 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.			
Coupler sideplay – Max of 50 mm side to side (at headstock). No appreciable end movement			
Coupler packing – 3 mm minimum thickness, no cracked welds (if welded)			
Janney yokes - No cracks or other damage. Key retaining bolt secure and not excessively worn, carrier plate fastenings secure			
Draft lugs - Undamaged, securely attached, no rubbish between underframe and lugs			
Spring packs - No deterioration, broken coils (spring type), yoke guide pins intact			

Sidechains (if fitted) **-** Hang well clear of rail, intact, no cracks, excessive wear		

14 Tender / Tanks / Bunkers

Frames - no cracks, damage, loose rivets	
Headstock(s) – no corrosion, damage	
Locomotive to tender drawgear – secure, no damage, springs OK	
Tanks – no water or fuel leaks	
Tanks and bunkers - no excessive corrosion, secure to underframe	
Air and water hoses - serviceable	

15 Tender Bogies

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

16 Brakes

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

Brake Air Test – all tests correctly passed (attach test record)	

17 Ashpan / Firepan

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

18 Firebox

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

19 Smokebox (Inhouse Inspection Only)

Smokebox - sound with no leaks	
Internal steam pipes - sound with no leaks	
Blast nozzle and blower ring - clean and free of carbon	
Superheater and elements - sound with no leaks	
Spark arrestor - fits correctly and secure (max gap 3mm)	
Spark arrestor – no cracks or corrosion holes**,** wear suitable for further service	

20 Pipework

Condition- free of leaks, secured to prevent vibration	
Lagging - serviceable	

21 Tests in Steam

Air compressor - mounts secure, no pounding or uneven running	
Generator and lights - operate correctly (generator voltage = 30 to 36 volts)	
Cab lights - operate correctly	
Cylinder drain cocks - operate correctly	
Injectors - operate correctly	
Lubricator(s) - operates correctly	
All auxiliaries - operate correctly	
Whistle – operates (from both sides of cab)	
Throttle - operates freely and locks in place	

Sanders - feeding correctly and onto rails	
Locomotive - moves without knocks, had even exhaust beats forward & reverse	
Axleboxes – move freely in guides	
Steam leaks - do not obscure vision	

22 General

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

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

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

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

Fault Details	Reference		Priority	
Repair Details		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.