

- 19 The bogies are of the GPS 22.5 type manufactured by the Gloucester Railway Carriage and Wagon Company. They comprise a fabricated steel bogie frame supported on four pedestal primary suspension units, each with dual coil springs and a wedge-operated damper arrangement designed to provide a friction force that increases with carried load (figure 5). The wagon body is supported on a conventional UIC-type secondary suspension: a hemispherical *centre pivot*, with a composite friction liner, and a pair of *side-bearers*, each comprising a coil sprung top plate with a friction pad on the top and a metal *downstop* underneath (figure 5 inset).

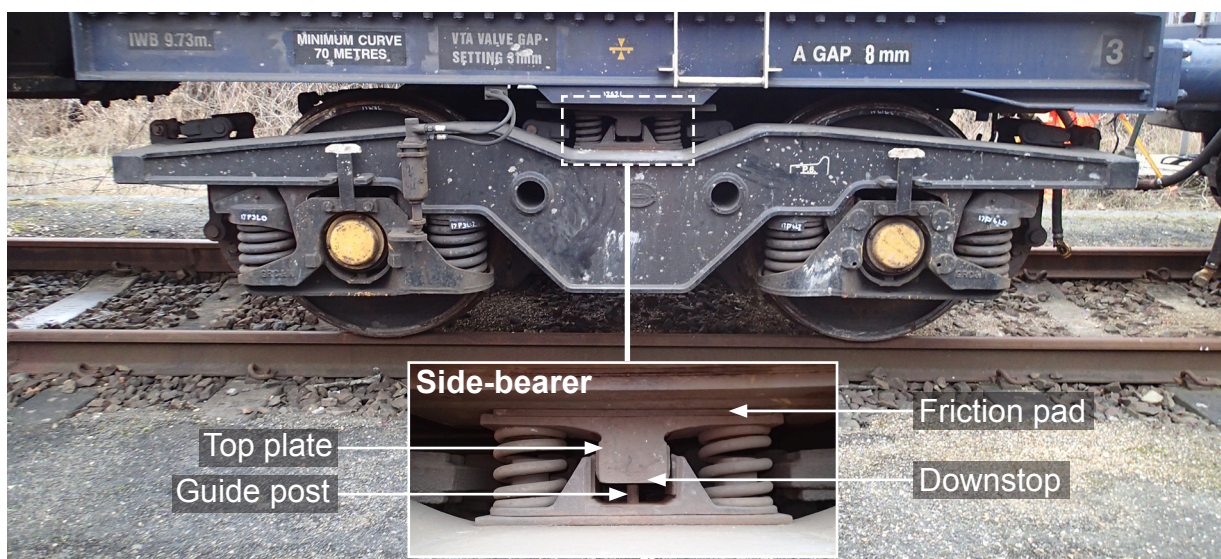


Figure 5: GPS 22.5 bogie

- 20 GBRf requires that the JGA wagon fleet it operates is maintained in accordance with a time-based programme: a weekly visual inspection, a four-monthly planned preventative maintenance task (PPM) and an annual vehicle inspection and brake test (VIBT). The wagons are scheduled for general repair, a maintenance process that involves dismantling, refurbishment and rebuilding, every nine-and-a-half years. Wagon 16 last underwent general repair in June 2015 at which its bogies were overhauled. The work required included renewal of the centre pivot friction liners and repair of the side-bearers. The last major maintenance task was the PPM on 25 November 2016 where additional work to one of the side-bearers was identified. At the time of the derailment wagon 16 was displaying a green card, which had been applied to highlight the need to repair a brake system air leak that had been found on 14 January 2017; this had no bearing on the accident (paragraph 68).
- 21 The wagons were modified in 2004 by wagon manufacturer W H Davis. The RAIB found limited information regarding their earlier manufacture, and no records of testing, calculation or approval work relating to derailment resistance performance.

### Track involved

- 22 The newly-laid track at the double junction comprises *CEN56* rail supported on concrete *bearers* and sleepers, and stone ballast. In the vicinity of the derailment the rails are seated on rubber pads and are secured to the bearers with rail fastenings.