

THE *A1* STEAM LOCOMOTIVE TRUST

Registered Office, General Correspondence & Membership Enquiries:
Darlington Railway Centre & Museum, North Road Station, Darlington DL3 6ST
Hotline Answerphone: 01325 4 60163

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FIRST WHEELS FITTED TO NEW STEAM LOCOMOTIVE ‘TORNADO’

Significant new developments at Darlington Locomotive Works

The A1 Steam Locomotive Trust, the registered charity that is building the first new mainline steam locomotive in Britain for 40 years at a cost of over £1.7 million, today announced the fitting of the first wheels to No. 60163 *Tornado* at Darlington Locomotive Works (DLW).

The four 3ft 2in wheels have been fitted to *Tornado*'s front bogie, leaving the two, rear 3ft 8in ponytruck and six 6ft 8in driving wheels to be fitted over the coming months. The wheels were cast by William Cook plc on very advantageous terms to the Trust. This is the first time that a new set of wheels has been completed for a mainline steam locomotive since British Railways received its last new steam locomotive in 1960.

David Elliott, Head of Engineering, The A1 Steam Locomotive Trust, commented:

“The fitting of the first wheels to *Tornado* is a very significant step forward for the Trust and a major step forward for the heritage railway movement. In addition to keeping steam alive in the 21st Century by building new locomotives, we seek to apply the best of both modern and traditional engineering methods, processes and technology – seen at its best in *Tornado*'s wheel manufacture.”

Other Engineering Progress

Inside motion bracket

The inside motion bracket (which supports the slide bars and valve gear for the inside cylinder), cast by Wm Cook Cast Products at Burton has been moved to Ufone Precision Engineers, Dudley, West Midlands for machining.

Coupling Rods and Motion

The rear coupling rods have had the machining completed by Ufone, meanwhile the machining of further rods is underway. The crosshead machining has also started in preparation for welding on the crosshead arms, which drive the drag links that are connected to the combination levers.

More follows...

Wheelsets

Work continues at DLW to fit the manganese steel liners to the hornblocks to enable the wheelsets to be located in the frames. Serco Railtest have conducted the mandatory ultrasonic inspection of the axles and crank pins to confirm their metallurgical integrity and to provide reference traces against which future scans will be compared.

Machining of the roller bearing axle cannon boxes for the intermediate and trailing driving wheelsets is well advanced at Ufone.

Smokebox components

The chimney, chimney liner, blast pipe and three steam pipes have been delivered to DLW following completion of machining by Ufone Precision Engineers at Dudley, West Midlands. Good progress is being made by Ian Howitt of Crofton, Wakefield on the distinctive superheater header covers, which are fitted to the rear of the smokebox. These deceptively simple looking items would originally have been made by pressing red hot plate between male and female dies. This process is not viable for making two covers, as the tooling costs would be excessive. Instead, a single male former is made and the covers are manually 'panel beaten' from 10mm plate using the former to create the right shape.

At Darlington Locomotive Works, the smokebox has now been removed from the locomotive following its trial fit. This is to enable further work to be done including welding the stiffening plates into the bottom of the box, fitting the blast pipe and steam pipe extensions, fitting the chimney and liner assembly and tidying up the remaining platework.

Cab

In anticipation of lifting the engine to fit the wheels, the cab has now been removed. In the mean time a group of A1 Trust supporters from East Anglia led by Alan Lusby, have made the cab floor from Iroko hard wood.

Changes at Darlington Locomotive Works

The development of Darlington Locomotive Works, home of *Tornado*, continues to accelerate. Recent equipment acquisitions include:

- A new 6mx6m five tonne overhead crane funded by a grant from Darlington Borough Council. In addition to enabling DLW to take delivery of the 6ft8in driving wheelsets without complication, it has been invaluable in both production tasks, such as the drilling of the bogie, and material hand. It has also been used to lift the smokebox and cab off *Tornado* to enable the frames to be lifted and the wheelsets fitted.
- The long-term loan of a set of Matterson jacks from the Severn Valley Railway (SVR). Initial investigations indicate that the jacks are mechanically sound but require a complete rewire. A representative of Matterson is working with the Locomotive Construction Company Ltd (LCC – the subsidiary of The A1 Steam Locomotive Trust that is assembling *Tornado*) to bring the jacks up to full working order. In addition Matterson's will produce drawings of jacking brackets - for the LCC to fabricate - to enable a straight "in one go" lift. The existing beams would require two lifts. The jacks will be restored by the LCC, but ownership will remain with the SVR.

Production has started with the CNC turning centre and the LCC recently acquired a new volunteer, whose company did the CNC retrofit on its machine.

The LCC workforce now consists of Damian Brown (IT, Engineering and Design), John Shiel (Utilities), Edward Farms (Apprentice), Jennifer Cox (On University work placement, reading Mechanical Engineering at Imperial College) in addition to Bill Brown, works manager.

Bill Brown, Works Manager at Darlington Locomotive Works, added:

"Darlington Locomotive Works is now staffed and fully operational. The construction of *Tornado* occupies a significant proportion of our workforce's time but we are looking for additional contract work such as tender and coach bogie overhauls. We are currently overhauling, and fitting with roller-bearings and air brakes, the second tender for 71000 *Duke of Gloucester*."