



·76077·

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# Boiler

## Component Sponsorship Scheme

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*Boiler no. 1052 was one of the earliest built for the class and made at Darlington in 1953*

**For any enquiries on this component sponsorship scheme  
please contact**

**Dawn Southwell**

**share-registrar@standard76077.com or tel: 01527 544076**

**Thank you for your support**

# Lot No: B001

## A pair of boiler smoke tubes

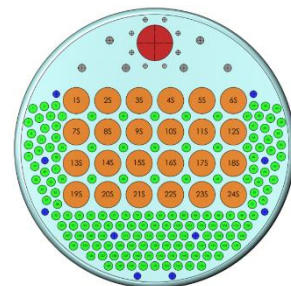
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### Details:

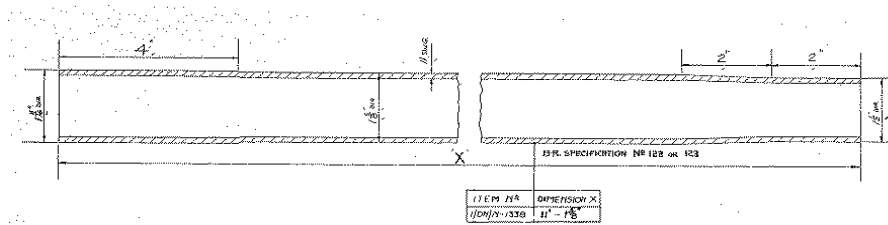
There are 156 smoke tubes fitted in 76077's boiler which are shown in green on the tube plate diagram. This sponsorship is for a pair of tubes. These tubes are made from solid drawn steel to a required standard for pressure vessels. Each tube is swaged up at the smokebox end and swaged down at the firebox end to fit the tube plates.



The cost of these tubes includes the cost of swaging up and down plus the cost of fitting them into the boiler.



The fitting of the tubes involves annealing, polishing, expanding and beading at the firebox end.



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<b>Total no of units</b>	<b>:</b>	<b>78 [68 available]</b>
<b>Unit Cost</b>	<b>:</b>	<b>£150 each pair</b>

# Lot No: B002

## Superheater Flue Tube

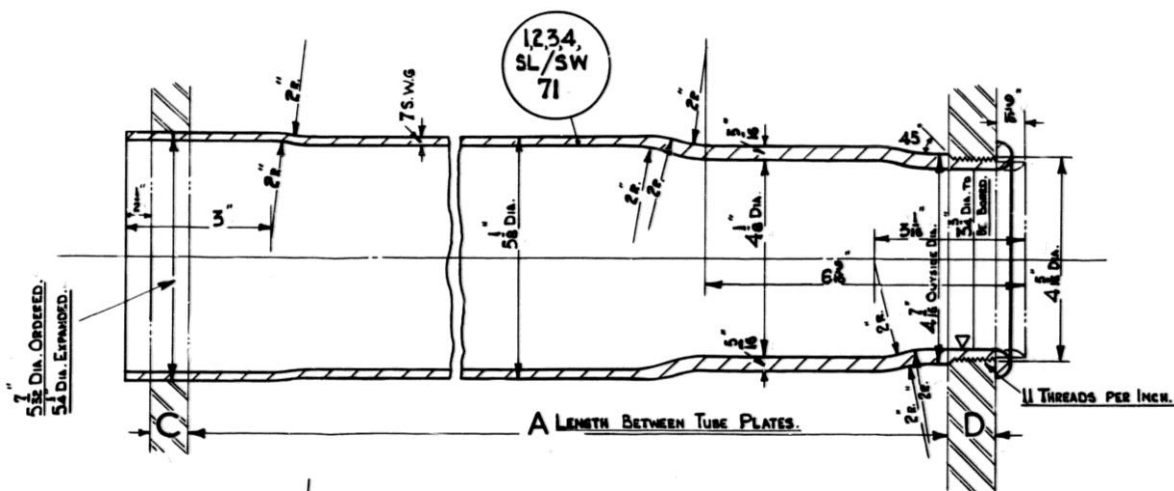
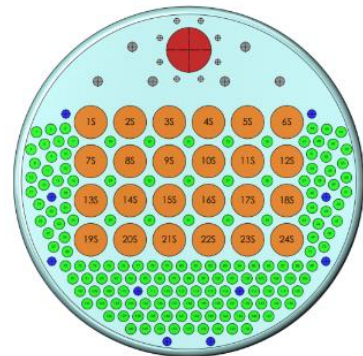
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### Details:

There are 24 superheater flue tubes fitted in 76077's boiler which are shown in orange on the tube plate diagram below. This sponsorship is for one tube. These tubes are made from solid drawn steel to the required standard for pressure vessels. Each tube has a bottle end welded on to the main tube which is threaded to suit the firebox tube plate. Once welded then the welds must be X-rayed to ensure the weld is good.



The cost of sponsoring these tubes includes the machining of the bottle ends, welding, X-raying, tapping of the holes in the firebox tube plate and the actual fitting process which involves screwing them into the firebox tube plate, expanding both ends and beading in the firebox




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<b>Total no of units</b>	<b>:</b>	<b>24 [23 available]</b>
<b>Unit Cost</b>	<b>:</b>	<b>£1,000</b>

# Lot No: B003

## Smokebox Tube Plate

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### Details:

The smokebox tube plate (shown separated from the boiler in this CAD image), is fitted into the front of the parallel barrel section of the boiler. The smokebox tube plate consists of a flat steel plate with a flange which can be either pressed over a former or fabricated by welding on a steel ring. A series of holes are accurately marked and drilled to suit the tubes, longitudinal stays, washout plugs and the main steam pipe. Due to the high cost of this component, the sponsorship has been broken down into 15 units of £500 each.



The cost of this sponsorship includes both the manufacture of the tube plate and installation into the boiler and includes fitting approximately 100 rivets to secure it to the boiler barrel.

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<b>Total no of units</b>	<b>:</b>	<b>15</b> [14 available]
<b>Unit Cost</b>	<b>:</b>	<b>£500</b>

# This item is not available - already sponsored

**Lot No: B004**

## **LHS Clack Pad**

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### **Details:**

The LHS clack pad is a steel boss which is mounted on the top part of the parallel boiler barrel section. Its purpose is to enable the fitment of the boiler feed clack which is a non return valve feeding water from the injectors into the boiler. The component is machined on the rear to match the diameter of the boiler and on the front to suit the clack valve.

As shown in the photo below the original clack pads were badly damaged when the non ferrous clack valves were cut off at Barry scrap yard.



The cost of this sponsorship includes both the manufacture of the new clack pad and installation into the boiler including riveting and seal welding it into position



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<b>Total no of units</b>	<b>:</b>	<b>1</b>
<b>Unit Cost</b>	<b>:</b>	<b>£600</b>

# This item is not available - already sponsored

## Lot No: B005 RHS Clack Pad

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### Details:

The RHS clack pad is a steel boss which is mounted on the top part of the parallel boiler barrel section. Its purpose is to enable the fitment of the boiler feed clack which is a non return valve feeding water from the injectors into the boiler. The component is machined on the rear to match the diameter of the boiler and on the front to suit the clack valve.

As shown in the photo below the original clack pads were badly damaged when the non ferrous clack valves were cut off at Barry scrap yard.



The cost of this sponsorship includes both the manufacture of the new clack pad and installation into the boiler including riveting and seal welding it into position



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<b>Total no of units</b>	<b>:</b>	<b>1</b>
<b>Unit Cost</b>	<b>:</b>	<b>£600</b>

## Lot No: B006

### A pair of copper boiler stays

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#### Details:

To join the inner and outer firebox plate work together and stop the metal being deformed by the pressure within the boiler, stays are used. There is one of these stays fitted to approximately every 4 square inches of unsupported flat plate work. BR standard locomotives were built with predominantly Monel metal stays but copper was also used in areas more prone to flexing.

This sponsorship is for a pair of copper stays. Copper is used for its flexibility and corrosion resistance, but the correct grade is difficult to source which makes it expensive to buy. To ensure a good seal each stay has to be accurately machined from round bar to the correct thread diameter (within 0.001") for the hole it's destined for. The thread at each end of the stay must also be in pitch so as to enable it to screw into position.



The cost of this sponsorship includes both the manufacture of the stays and installation into the boiler including re-tapping the hole and tooling over the stay head to effect a good seal



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<b>Total no of units</b>	<b>:</b>	<b>20</b> [13 available]
<b>Unit Cost</b>	<b>:</b>	<b>£120 each pair</b>

## Lot No: B007

### A pair of Monel metal boiler stays

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#### Details:

To join the inner and outer firebox plate work together and stop the metal being deformed by the pressure within the boiler, stays are used. There is one of these stays fitted to approximately every 4 square inches of unsupported flat plate work. Originally BR standard locomotives were built with predominantly Monel metal stays but copper was also used in areas more prone to flexing.

This sponsorship is for a pair of Monel stays. Monel is an alloy of nickel and copper and very expensive to buy. To ensure a good seal each stay has to be accurately machined from round bar to the correct thread diameter (within 0.001") for the hole it's destined for. The thread at each end of the stay must also be in pitch so as to enable it to screw into position.



The cost of this sponsorship includes both the manufacture of the stays and installation into the boiler including re-tapping the hole and final caulking to ensure it seals effectively.



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<b>Total no of units</b>	<b>:</b>	<b>20 [18 available]</b>
<b>Unit Cost</b>	<b>:</b>	<b>£150 each pair</b>



# Lot No: B008

## Set of 3 patch screws

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### Details:

There are 120 rivets that require replacement in 76077's firebox predominantly in the corner lap joints. This is due to the fire corroding the heads of the rivets to a point where their structural integrity is in doubt. Where it's not possible to access both sides of a rivet to replace it, then a patch screw has to be used.

A patch screw is a threaded alternative for a rivet which is custom machined with the correct diameter thread to suit the hole it's going to fit. The patch screw has a relieved section above its head so when it's screwed down to a certain torque this redundant section snaps off leaving a finish that looks just like a rivet head.



This sponsorship is for a set of three steel patch screws and includes the cost of removing the old rivet, tapping the hole, cutting a seat for the head of the patch screw, screwing in the patch screw and finally tooling over the head with a pneumatic tooling gun to effect a good seal.



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<b>Total no of units</b>	<b>:</b>	<b>40 [40 available]</b>
<b>Unit Cost</b>	<b>:</b>	<b>£120 for set of 3</b>