

Lot No: 0074	Little End Pins (gudgeon pins) - LHS	Unit Cost: £190	Available units: 4		
Lot No:Little End PinsUnit Cost:Available units:0075(gudgeon pins) - RHS£1904					
The Little end pins, also known as the 'gudgeon pins', together with the nut and cotter, are the pins that connect the crosshead to the connecting rod. They are located in a prominent position in the centre of the crosshead behind the cylinders.					

Little End Pins (gudgeon pins)



Lot No:	LHS Lubricator drive	Unit Cost:	Available units:	Lubricator Drive
0087	linkage	£200	10	
Lot No:	RHS Lubricator drive	Unit Cost:	Available units:	
0088	linkage	£200	10	
The Linko	age that drives both the LHS	5 and RHS mech	anical	
lubricator	r is connected to the inside	pivot point of th	e expansion	
link via a	bell crank, long connection r	od, drive shaft c	and short	
connectio	n rod which connects to the	bottom of the c	arm on the	Linkages
lubricator	r.			LINAUYES



Lot No:	RH Injector water	Unit Cost:	Available units:
0090	feed connector	£375	2
The RH w Fireman's tender to	ater feed connector is mo side. This component con the locomotives live stean	unted below the co nects the water ou n injectors.	ab on the utlet from the

Lot No:
0091Tender steam brake
connectionUnit Cost:
£200Available units:
2The Tender steam brake connection is fitted at the rear of the
locomotive under the cab off a bracket attached to the brake
shaft.Available units:
2

RH Injector Water Feed Connector



Tender Steam Brake Connection





Lot No: 0092	Tender coal sprinkler connection	Unit Cost: £150	Available units: 2
T I . T 1		ta Cara di sa ali si	
locomotive	er coal sprinkler connection e under the cab off a brack	et attached to th	rear of the ne drag box.

Tender Coal Sprinkler Connection



Lot No:	Coal sprinkler control	Unit Cost:	Available units:
0096	valve	£200	1 (of 2)

The Coal sprinkler control value is identical to the preparation pipe control value (lot no 0095). It allows the fireman to control the coal sprinkler in the tender which helps keeps the coal dust to a minimum when the locomotive is running in reverse.

Coal Sprinkler Control Valve





Lot No:	Trailing Sand	Unit Cost:	Available units:	Trailing Sand Box
0099	Box	£300	2	
Both Leac	ding and Trailing boxes a	re mounted on top	o of a horizontal	Image: Second box
frame str	retcher between the locc	omotive's frames.	Their purpose is	
to hold th	ne kiln dried sand that is	used to increase	the adhesion of	
the wheel	Is when working on steep	lines or in times o	of poor weather.	



Tender Wheels "Sponsor a Spoke"				
Total No of Units: 60 (6 wheels with 10 spokes each)	Available units: 12.5	Unit Cost: Full spoke - £350	Half spoke - £175	
We have been very fortunate to ac set of BR2A tender wheels and axl wheels have been in storage for ow being rescued from Britton Ferry S	equire an original e boxes. These er 40 years since Steelworks.	The steel works purchased many steam locomo tanks were removed and the chassis used as a 1980's these frames were deemed surplus to r preservation schemes. Some of the tenders were in such poor condition that only the wheels were of use so many of the frames were simply scrapped.	<text></text>	



Boiler





Lot No:	Total number of units - 24	Unit Cost:
B002	Available units - 2	£1,000





There are 24 superheater flue tubes fitted in 76077's boiler which are shown in orange on the tube plate diagram above. This sponsorship is for one tube and 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.

Superheater Flue Tubes

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.





Lot No:	Total number of units - 15	Unit Cost:
B003	Available units - 7	£500

Due to the high cost of this component, the sponsorship has been broken down into 15 units of \pm 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.

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.





Lot No:For a number of units - 20Onit cost:B006Available units: 3£120 per pairA pair of Copper Boiler Stays	Lot No: B006	Total number of units - 20 Available units: 3	Unit Cost: £120 per pair	A pair of Copper Boiler Stays
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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 and 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.

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.





Lot No:	Total number of units - 20	Unit Cost:	A pair of Monel Boiler Stays
B007	Available units: 12	£150 per pair	
To join the being defo of these s flat plate predomina to flexing. This spons manufactu the hole a Monel is a good seal correct the The threa screw into	e inner and outer firebox plate we ormed by the pressure within the stays fitted to approximately even work. Originally BR standard locd antly Monel metal stays but coppe antly Monel metal stays but coppe sorship is for a pair of Monel stay ure of the stays and installation in and final caulking to ensure it seals an alloy of nickel and copper and ve each stay has to be accurately mo nread diameter (within 0.001") for ad at each end of the stay must al o position.	ork together and stop the metal boiler, stays are used. There is one ry 4 square inches of unsupported omotives were built with r was also used in areas more prone as and includes both the nto the boiler including re-tapping s effectively. ery expensive to buy. To ensure a achined from round bar to the r the hole it's destined for. so be in pitch so as to enable it to	<image/>



TODDINGTON STANDARD LOCOMOTIVE LTD Component sponsorship schemes

Lot No:	Total number of units - 40	Unit Cost:	Set of 3 patch screws
B008	Available units: 37	£120 per set of 3	
There an predomina heads of ' Where it' patch scra	re 120 rivets that require antly in the corner lap joints. Th the rivets to a point where their 's not possible to access both si ew has to be used.	replacement in 76077's firebox nis is due to the fire corroding the structural integrity is in doubt. Ides of a rivet to replace it, then a	
A patch s with the screw has certain to like a rive	screw is a threaded alternative f correct diameter thread to suit s a relieved section above its he orque this redundant section snap at head.	or a rivet which is custom machined the hole it's going to fit. The patch ead so when it's screwed down to a os off leaving a finish that looks just	
This spons	sorship is for a set of three stee	l patch screws and includes the cost	
of removi	ng the old rivet, tapping the hole,	, cutting a seat for the head of the	
patch scru	ew, screwing in the patch screw a	and finally tooling over the head with	
a pneumat	tic tooling gun to effect a good se	eal.	



Lot No:Total number of units - 100Unit Cost:B009Available units - 100£120 (5 stays)	
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This sponsorship is for a quantity of 5 steel boiler stays. The cost includes both the manufacture of the stays and installation into the boiler including re-tapping the hole and caulking to ensure it seals effectively and a sacrificial nut fitting on the fire side, to protect the end of the stay from damage due to the heat of the fire.



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 on approximately every 4 square inches of unsupported flat plate work.

With the additional work to renew the bottom section of the outer firebox now required on our boiler we need 500 of these stays to tie the inner and outer firebox together. 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. A nut is also fitted to the end of each stay inside of the firebox. This protects the end of the stay and prevents damage from the fire.



Lot No: B010	Total number of units - 24 Available units - 24	Unit Cost: £1125 each		Super heater element
There are 24 superheater flue tubes fitted in 76077's boiler and each one of these needs a super heater element fitting. The purpose of a super heater element is to collect steam from the header (regulator) and pass it down the flue tubes several times so the heat from the fire can dry the steam further. This gives the steam better expansive properties and as such when running makes the locomotive more efficient.				Whilst we do have the original elements removed from our boiler soon after its arrival from Barry scrap yard in the 1980's they are unlikely to be fit for a long service life. It would be preferable to fit new elements during the restoration, rather than patching up the originals.
				Unfortunately due to the design, and unless it's one of the bottom row that is leaking, all the others need to be removed to gain access to the defective one, meaning repairs are very labour intensive. Fitting new at the start of the boiler certificate should ensure they last for the next 10 years or more, ensuring the locomotive remains reliable and keeps earning money for future overhauls.



Lot No:	Total number of units - 42	Unit Cost:	1 sq ft of copper firebox plate
B011	Available units - 42	£425 each	

As the boiler overhaul has progressed it has become clear that the previous repairs carried out by British Rail in the 1960's were not as good as we were expecting. When the stays (fitted in 1964) were removed from the sides of the firebox it was discovered that the stay size was approaching the maximum allowable and that cracks were present which radiated out from the stay holes.



The cost of welding up and redrilling all these holes is very similar to the cost of replacing the copper plate, so the decision has been made to replace the copper in the lower part of the firebox with new material.

Replacing the platework also allows small first size steel stays to be fitted giving the firebox a much greater life expectancy as it allows new larger stays to be fitted in the future as and when repairs are required.

Copper for a steam locomotive firebox is a special alloy known as C107 it contains small amounts of Phosphorus and Arsenic to help with the extreme temperatures and the flexibility required when the locomotive is in service. Unfortunately, it is now very difficult to source and so demands a premium price. The total amount of copper to be replaced is 42 square feet. This sponsorship is for 1 square ft (300mm) of 5/8" thick (16mm) it includes fitting to the boiler.

Help us to complete 76077's boiler overhaul and return the locomotive to service as soon as possible.