



Worcester Cathedral

Guild of Bellringers

STAYS

Details required for replacement **ash** stays are the **L** length and cross-section, shown as **T** Thickness and **W** width. It is best to drill the two stay holes **14mm diameter** in situ as they are not all perfectly aligned. Some existing stays have tapers but these are not necessary. All old bolts have been replaced by **12mm** diameter zinc-coated hex head steel ones so that all of them can be removed using two **19mm** (or $\frac{3}{4}$ " **spanners**, one ring and one ratchet. For the back bells an extension to the socket on the ratchet spanner is needed as the stocks are deep.

FOUR FRONT BELLS (1,2,3,2#)

These stays are bolted to the outside of the stock, on the **non-pulley** side. The **L** **measures could be re-expressed** (min & max?) so that the stay always lines up with the bottom of the stock for easier fitting.

	Bolt mm	T x W mm	L mm	Notes	Spares
1	160	55 x 55	950	Sep 2018	Old slotted one 51 x 51 L 890 (1996)
2	160	55 x 55	950	Sep 2018 – Length is CRITICAL, stay has to engage with slider but avoid south end of frame.	TWO - Old slotted one 53 x 50 L 900 AND another one
3	160	55 x 55	950	Sep 2018	old slotted one 52 x 50 L 854 (2010)
2#	??	55 x 55	980	New in Feb 2018 when bell installed. This is tapered so the thin end needs to be measured to work out a size for a straight stay	July 2019 straight design – check dimensions

OTHER TWELVE BELLS (4-12 plus 5#, 6b, 9#)

These stays all slot into the socket on top of the headstock.

	Bolt mm	T x W mm	L mm	Notes	Spare
4	110	69 x 56	860	Sep 2018. This is quite thick for size of bell A small section needs to be taken off the bell-side end inside the headstock	THREE – July 2018, July 2019 Sep 2019 - undrilled
5#	120	69 x 57	863	Jun 2019 As per 4 th stay but different hole spacing - has to be trimmed inside stock	TWO - July 2019 Sep 2019 - undrilled
5	110	65 x 54	910	Jun 2019 Ensure upright as stay may rub sliderway otherwise	Jul 2019
6	110	63 x 54	956	Sep 2018	No spare
6b	110	71 x 55	960	Old 7 th stay fitted Jun 2019 after breakage Gap between stay and slider way very small. Difficult to fit. Stay has to be trimmed inside stock	No spare
7	120	69 x 54	940	July 2019	Only spare is short, has to be put in with top bolt only
8	120	75 x 60	1000	Existing	July 2019
9#	140	78 x 65	980	July 2019	Old one
9	140	85 x 78	1070	Bolts better at 130mm Ordered from JW	Sep 2019
10	140	90 x 80	1090		Sep 2019
11	140 210	80 x 78	1160	Bottom bolt needs to be 150mm Ordered from JW	Sep 2019
12	160 210	100 x 85	1290	Bottom bolt better at 180mm Ordered from JW	Sep 2019

As at 9 Sep 2019 we had created, drilled and fitted a spare stay for all the bells except **6** and **6b**, though the **7th** spare isn't quite satisfactory. Somehow we have ended up with too many for 4th and 5# as some usable wood has been trimmed but is short – these two bells have the shortest stays.

The back bells are rather awkward because the inside of the stocks contain lips which prevent a simple rectangular piece of wood fitting in. Some of the **bolts** are too long and could be replaced.

SLIDERS & SLIDER-WAYS

Sliders – these are about a decade old but some are quite worn on their underside. Their ability to move on the slider-way (or ‘runner board’) depends on a low level of friction. All the slider-ways have been cleaned and then **dry-lubricated with a silicone polish** (as used for the rope chutes). The effect on the front bells was quite remarkable – clearly a significant amount of energy is lost by the bell moving the slider across. As the front eight are rung to the balance in 12-bell ringing it is important that these sliders are monitored regularly. **The tenor slider pivot was moved to a better position Feb 2020.**

Slider-ways - Front bells (1, 2, 3, 2#) all have new slider-ways **(2018-19), the 5th was replaced in Jan 2020**, the rest are probably 1928 or earlier. The front bell slider-ways are positioned off-centre to the bearings to compensate for the outside mounting of the stays. The treble and 2nd still have the original slider pivot points as moving them in line with centre of slider-way is quite difficult and has a very modest benefit. Those of the 2# and 3rd are in the correct position.

The slider-ways of 3, 4, 6, 6b, 7 and 8 would benefit from a review.

Bernard Taylor, Feb 2020