

Case Study - Y notches interfering with Square cuts on ZX5

This case study analyses a problem on a ZX5 where a rear Y notch caused a back cut on the piece in front of it.

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Summary

When cutting a rear Y notch next to a square cut, the cutting sequence was incorrect leading to a mess on the end of a square cut piece.

<https://vimeo.com/362075195/4b7745e0dd>

Solution

The calculations for the final Square cut position put it in exactly the same x axis location as the Y notch. The software is then able to sort them in the wrong order on the bar, putting the Y notch in front of the square cut in cutting order. This is seen by the fact that the flying mullion does not eject before the Y notch is cut.

Checking the operation positions in the bar queue shows the positions are the same.

This is overcome by increasing the gap for a Y notch to square cut, so there is a small amount of wastage. This is done in the gaps file by adding 'x' to the gap.

k becomes k+x

Here is the gaps file before modification

```
gaps | SQ \ MI < AH / IM e ES s mSQ m mMI a mAH i mIM f YF r YR (Lead)
| SQ k j+v w+j j+v t k j+v w+j j+v k k
\ MI j+v j+v w+j j+v t j+v j+v w+j+v j+v j+v j+v
> AH k+x j+v j j+v t k+x j+v j j+v k+x k+x
/ IM j+v j+v w+j+v j+v t j+v j+v w+j+v j+v j+v j+v
e ES 40 40 40 40 0 s s s s s s
s mSQ k j+v w+j j+v e k j+v w+j j+v 40 40
m mMI j+v j+v w+j j+v e j+v j+v w+j+v j+v j+v j+v
a mAH k+x j+v j j+v e k+x j+v j j+v k+x k+x
i mIM j+v j+v w+j+v j+v e j+v j+v w+j+v j+v j+v j+v
f YF k j+v w+j j+v 40 k j+v w+j j+v k+x f
r YR k j+v w+j j+v 40 k j+v w+j j+v f k+x
```

And After

gaps | SQ \ MI < AH / IM e ES s mSQ m mMI a mAH i mIM f YF r YR (Lead)
 | SQ k j+v w+j j+v t k j+v w+j j+v k+x k+x
 \ MI j+v j+v w+j j+v t j+v j+v w+j+v j+v j+v j+v
 > AH k+x j+v j j+v t k+x j+v j j+v k+x k+x
 / IM j+v j+v w+j+v j+v t j+v j+v w+j+v j+v j+v j+v
 e ES 40 40 40 40 0 s s s s s s
 s mSQ k j+v w+j j+v e k j+v w+j j+v 40 40
 m mMI j+v j+v w+j j+v e j+v j+v w+j+v j+v j+v j+v
 a mAH k+x j+v j j+v e k+x j+v j j+v k+x k+x
 i mIM j+v j+v w+j+v j+v e j+v j+v w+j+v j+v j+v j+v
 f YF k+x j+v w+j j+v 40 k j+v w+j j+v k+x f
 r YR k+x j+v w+j j+v 40 k j+v w+j j+v f k+x

Case Notes

Created at	Author	Text
23/08/2019 11:31	Simon Orme	Richard, I have been asked to look at 2 issues. 1. 5T1 Flying Mullion 2. 5DV1 Windows Can you please explain to me exactly what the issue is and I will see what I can do to help Many Thanks Simon Orme
23/09/2019 13:49	Simon Orme	I will be setting up a 5T1FM to use as a Flying Mullion only, this will split these pieces out of the bars with the Y Notches and should get around the issue.
23/09/2019 13:59	Simon Orme	Email sent to FDS Paul We are currently having an issue at Britannia where there is a Y notched piece just prior to a Flying mullion using the 5T1 we are ending up with a notch on the leading end of the Flying Mullion. Would it be possible to output the Flying Mullion profile code as 5T1FM so these are separated from the notched pieces. I have added the following replicates into our System 5T1FM B5T1FM 9T1FM B9T1FM It would probably also be wise to do this with the Liniar Slim Transom as well, the codes would be LCW021FM BLCW021FM LSW021FM BLSW021FM Many Thanks Simon Orme

24/09/2019 08:56	Simon Orme	<p>Hi Simon, Is this not a machine software issue? Have you got and sample batches or video of it happening? Thanks Gareth</p>
24/09/2019 08:57	Simon Orme	<p>Gareth I had asked them to let me know immediately, the next time it happens, but in 2 weeks they have not had it. But yes, I believe it to be a gaps type issue as I put in the pulse when I was last down here. Richard is getting a batch together that he feels will replicate the issue. I was trying to put in place something they could work with in the meantime as this could take time to fix properly. Simon</p>
24/09/2019 08:58	Simon Orme	<p>Ok thanks. I think this one needs to have the root cause found rather than a workaround in FDS, as it has the potential to happen everywhere – but I appreciate you are just trying to get it working for the customer. It is entirely possible that the software update I did solved this problem, which is why it has not happened in the last 2 weeks. Please keep me informed with any detail of what happens. I particularly need to know when it happens so I can review the video and diagnostic files I will send Richard an email requesting this. Thanks Gareth</p>

24/09/2019 09:22	Gareth Green	<p>French door floating mullions 5T1 - Y notching issue</p> <p>Hi Richard, Simon has updated me on the issue you have had with French Door Mullions when a Y notch on a previous piece interferes with the following piece.</p> <p>This should not happen, so I am gathering information on it to get to the root cause.</p> <p>If you have a batch where this problem happens, I really need the time and date of when the saw cuts happened so I can review the video and diagnostics. The video history is only kept for a few days, so this needs to be fairly soon after it happens. Thanks</p> <p>Gareth Green Technical Director</p> <p>t: 01493 742635 e: garethg@stuga.co.uk P Before you print think about the ENVIRONMENT CONFIDENTIAL NOTICE</p> <p>The information contained in this email and any attachment is confidential. It is intended only for the named addressee(s). If you are not the named addressee, please notify the sender immediately and do not disclose, copy or distribute the contents to any other than the intended addressee. Any opinions expressed in this email represent those of the individual and not necessarily those of Stuga Machinery. Although Stuga Machinery have checked this message for viruses the recipient accepts that it is their responsibility to have adequate measures in place to protect their own systems. Stuga Machinery accepts no liability whatsoever whether direct, indirect or consequential arising from the receipt, alteration and/or dissemination of the contents of this message</p>
24/09/2019 12:26	Simon Orme	<p>'@Gareth Green</p> <p>Batch 06760501, Piece 17 is the flying mullion prepped at 13:17 so you can get the video the bar had YR II < ></p> <p>start arrowhead to 90 cut was fine, pusher then moved to the end of the piece and did the 90 degree cut, then immediately turned the blade to do the rear y notch WITHOUT ejecting the previous piece first, so the flying mullion was still held in position as the y notch was done, (the eject top clamp was off at the point of the Y notch cut. I hope this helps</p>
24/09/2019 14:11	Gareth Green	Z065_2019-09-24_13-16-41.mov
24/09/2019 14:13	Gareth Green	<p>gaps file needed additional +x for Y front and rear to square cut. This does not normally happen - you either have square cuts OR Y notches. This transom is also used as a flying mullion, - normally this is a separate profile</p>