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**From:** Norton, Vince  
**Sent:** Monday, April 06, 2009 9:28 AM  
**To:** Vicars, Gerald  
**Cc:** Boyles, Derek; James, Will; Wright, MaryAnn  
**Subject:** RE: 91919 Sear Safety Cam

The new Model 700 MIM sear safety cam will not work in the current Model 770 fire control. I looked at this last April when this question was initially asked of me. At the same time I looked at using the MIM sear in the fire control I also designed a new MIM sear that would fit in the Model 770 fire control. Those files were sent to Gary Williams for quote on April 18, 2008. I will forward you both e-mails from last year concerning this subject.  
Vince Norton

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**From:** Wright, MaryAnn  
**Sent:** Saturday, April 04, 2009 10:14 PM  
**To:** Vicars, Gerald  
**Cc:** Boyles, Derek; James, Will; Norton, Vince  
**Subject:** RE: 91919 Sear Safety Cam

Yes, we will send 50 samples of the MIM sear safety cam, p/n 401621 on Monday or Tuesday. I know that there are thousands of these parts at our coining operation.

Thank you for evaluating these parts.

Regards,  
Maryann

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**From:** Vicars, Gerald  
**Sent:** Friday, April 03, 2009 5:46 PM  
**To:** Wright, MaryAnn  
**Cc:** Boyles, Derek; James, Will; Norton, Vince  
**Subject:** RE: 91919 Sear Safety Cam

MaryAnn,  
Can we get some (20+) of these to evaluate?

Will,  
How would you anticipate this be handled? Some singular parts, several assemblies, and a quantity of test guns?

**Gerald Vicars**  
Engineering Manager  
**REMINGTON ARMS COMPANY, INC.**  
P.O. BOX 99  
22 RIFLE TRAIL  
HICKORY, KY. 42051  
Phone: (270) 856-4209  
Fax: (270) 856-3233  
<mailto:gerald.vicars@remington.com>  
Visit us @ <http://www.remington.com>

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**From:** Lance, Kevin D.  
**Sent:** Thursday, April 02, 2009 4:50 PM

**To:** Wright, MaryAnn

**Cc:** Gross, Joseph; George, Ronald M.; Holmes, Philip L.; Pugliese, Joseph M.; Shoemaker, Christopher D.; Sietsema, Glen D.; Vicars, Gerald; Williams, Gary

**Subject:** RE: 91919 Sear Safety Cam

Thanks for the information Maryann. Joe Gross had suggested that it might be a good idea for us to look for options on this part. Gary Williams our Materials Manager has prints out for quote and we will evaluate whether the MIM part you reference will work for us. If it does not we will strive to transition to another vendor in a timely fashion and appreciate your offer of support in sourcing this part.

Thanks again,  
Kevin

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**From:** Wright, MaryAnn

**Sent:** Thursday, April 02, 2009 3:47 PM

**To:** Lance, Kevin D.

**Cc:** Gross, Joseph; George, Ronald M.; Holmes, Philip L.; Pugliese, Joseph M.; Shoemaker, Christopher D.; Sietsema, Glen D.

**Subject:** 91919 Sear Safety Cam

Kevin,

Although PMPD has been supplying the part number 91919 powder metal sear safety cam for a number of years, we have found within the past two years that the technical and manufacturing issues with this part are costing the PMPD business thousands of dollars in new tooling, raw material and WIP scrap, and external heat treating charges. The density specification (7.4 g/cm<sup>3</sup> minimum, with production running at a 7.5 g/cm<sup>3</sup> annealed density) and apparent hardness specification (HRC 50 min.) for this powder metal part are at the very upper end of what is possible with our R-2020 (Fe-2 % Ni-0.8 % Mn-0.3 % Mo) material. The Ilion Plant has made the transition to the part number 401621 MIM sear safety cam, and the similar specifications for this metal injection molded part are attained with a manufacturing process that has a wider and more robust processing window to achieve densities of 7.4 g/cm<sup>3</sup> and higher. Therefore, we do not have the issues with the 401621 sear safety cam that we do with the 91919 sear safety cam.

Our most pressing issue at present is dimensional change in the heat treating process. Together with the Ilion Plant, PMPD has tested preblended and diffusion-bonded materials, variations on the heat treating cycle, restricting heat treating to specific furnaces, external heat treating, and extended annealing cycles. We have seen incremental improvements in our yields due to the extended annealing cycle but we still are in a screening and scrapping mode with this part. I estimate that the additional annealing will add approximately \$0.02+ to the current 2009 standard cost of \$0.51 for the PM blank. The current 2009 standard cost is \$0.98 for the machined and plated part. Also, the Ilion Plant is in the process of setting up a honing process after heat treating. I do not know the added cost of this operation.

With that being said, if the decision has been made not to make the change to the 401621 sear safety cam, I am urging you to outsource this part, including the secondary machining that is done in the Ilion Plant. I realize that this may take some time. I want to assure you that PMPD will support you in sourcing this part.

Please contact me if you would like to discuss this further.

Thank you.

Regards,  
Maryann

Maryann Wright, PMTI  
Manager  
Powder Metal Products Division  
Remington Arms Company  
14 Hoefler Avenue  
Ilion, New York 13357  
Tel (315) 895-3516  
e-mail: [maryann.wright@remington.com](mailto:maryann.wright@remington.com)  
Visit us at: [www.remingtonpmpd.com](http://www.remingtonpmpd.com)

