



OUR NAME IS INNOVATION

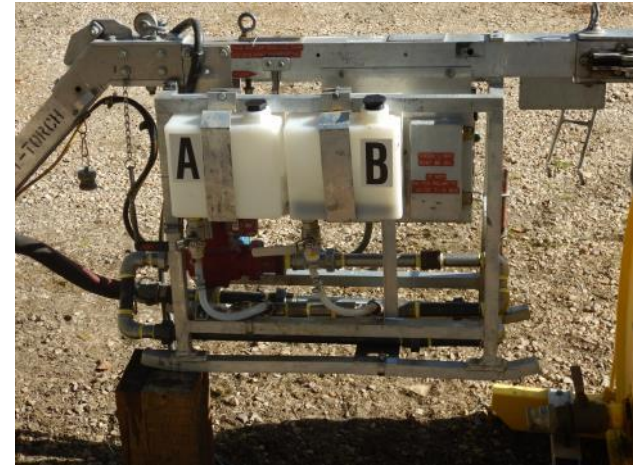
An in-line mixing kit for helitorch systems

Project Update - 2017 Ignition Workshop

Roy Campbell
March 28th, 2017

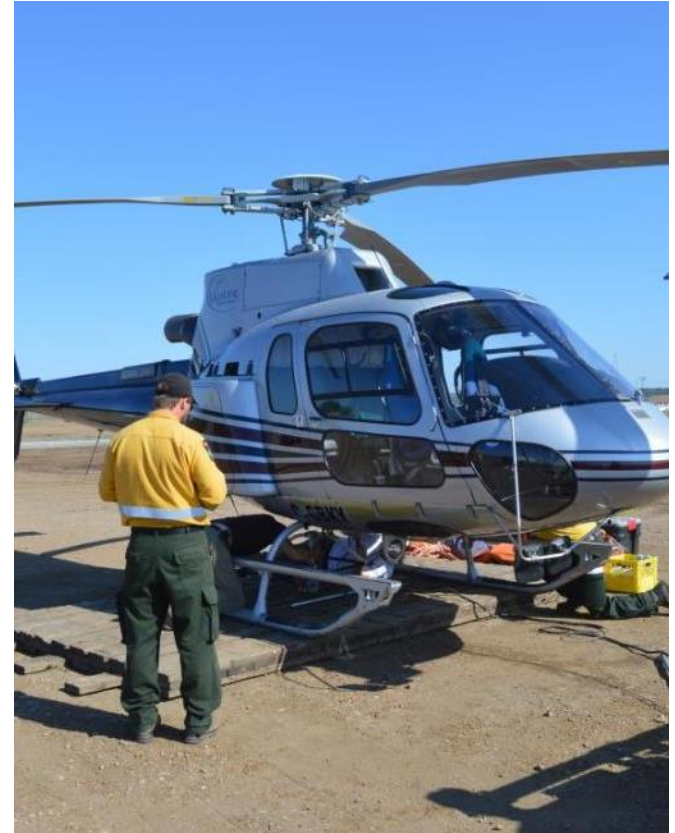
2016 Modifications – Reviewed Last Spring

- Plumbing reversed (lowered reservoirs & raised injection points above A & B supply lines)
 - improved Flash 21 flow by promoting fuel to float on Flash 21 chemicals above the injectors
- Line / injector adaptors re-sized to match line diameter & encourage smoother flow)
- Installed higher quality check valves on A & B supply lines (more reliable and corrosive resistant)



2016 Testing - Fort McMurray

- Trial 1 yielded twice as much B consumption and required B orifice downsizing to achieve mix ratio.
- Trial 2 produced consistent gel results with continuous use. However, flaring did occur from mainline gel blockages when used sporadically...blockages did clear with continuous use.
- Trial 3 centered on reducing A & B orifices to reduce overall gel viscosity to lessen gel blockage (blockages were eliminated, but gel quality proved unacceptable).



2016 Follow-up Testing – Strathcona Shop

- Subsequent testing at the shop indicated that mainline blockage could be over-come by positioning the static mixer close to the torch head.
- In doing so, acceptable gel was produced but formed a spray pattern not encountered previously (additional work would be required to regulate and rectify the spray pattern).



Conclusions

- Additional work is required to prefect in-line mixing.
- The venturie concept has proven successful in ground torch design (more tolerant of poor gel quality & flaring).
- Helitorch application relies on high degree of gel quality and reliability, so controlled motorized injection is likely the more problem free way to go!



Recommendations

- Continued work on in-line mixing should be weighed against the new helitorch design project currently underway.
- The in-line mixing project itself should be brought to conclusion.
- If the group, wishes to pursue additional in-line work, suggest it be done using knowledge gained and under new project objectives.
- Group feedback through Dave would be appreciated.





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Questions / Discussion

All project material posted:

[http://wildfire.fpinnovations.ca/Research/ProjectPage.aspx
?ProjectNo=127](http://wildfire.fpinnovations.ca/Research/ProjectPage.aspx?ProjectNo=127)