

10 Feb 1996

Tina,

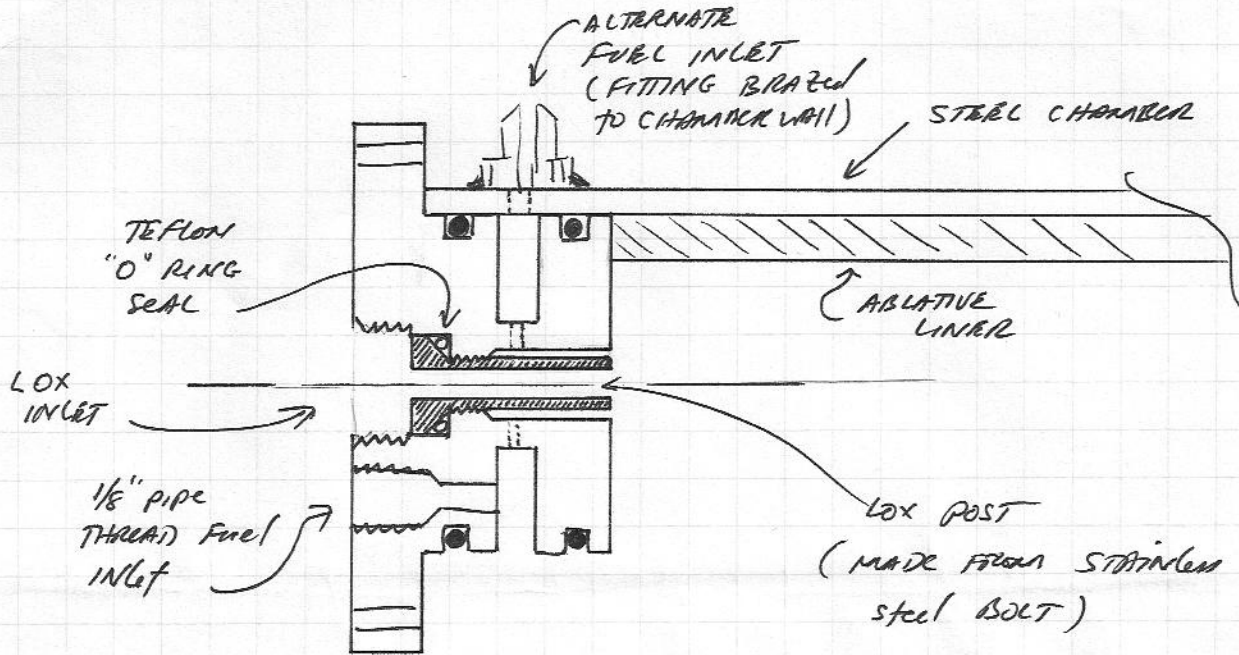
SORRY IT HAS TAKEN ME SO LONG TO RESPOND TO YOUR LETTER - AND I HAVE ALSO BEEN HOLDING SCOTT UP IN HIS RESPONSE TO YOU. WELL HERE GOES.

1. USE ETHYL ALCOHOL - ITS A BETTER FUEL
2. YOUR ASSUMED ISP OF 248 SEC IS HIGH - YOU MIGHT START WITH 200 SEC. THIS MAY STILL BE OPTIMISTIC FOR THE TYPE OF INJECTOR YOU ARE USING, BUT IT WILL BE MUCH CLOSER TO REALITY.
3. THE USE OF GRAPHITE FOR BOTH THE NOZZLE AND COMBUSTION CHAMBER LINER WILL LIMIT YOUR BURN DURATION TO SHORT TESTS. YOU MIGHT CONSIDER USING AN ABLATIVE MATERIAL (SILICA/PHENOLIC) AS THE CHAMBER LINER. ITS SACRIFICIAL CHARRING WILL HELP COOL THE NOZZLE & RESULT IN MUCH ~~LESS~~ LESS HEAT INPUT INTO THE CHAMBER OUTER WALL.
4. USE STEEL FOR THE CHAMBER HOUSING AND NOZZLE RETENTION PLATE INSTEAD OF ALUMINUM
5. INSTEAD OF THE SPRAY NOZZLE INJECTOR DESIGN, YOU MIGHT CONSIDER USING A COAXIAL SINGLE ELEMENT OR AN IMPINGING STYLE INJECTOR. THE ATTACHED SKETCHES MAY BE OF SOME HELP TO YOU.

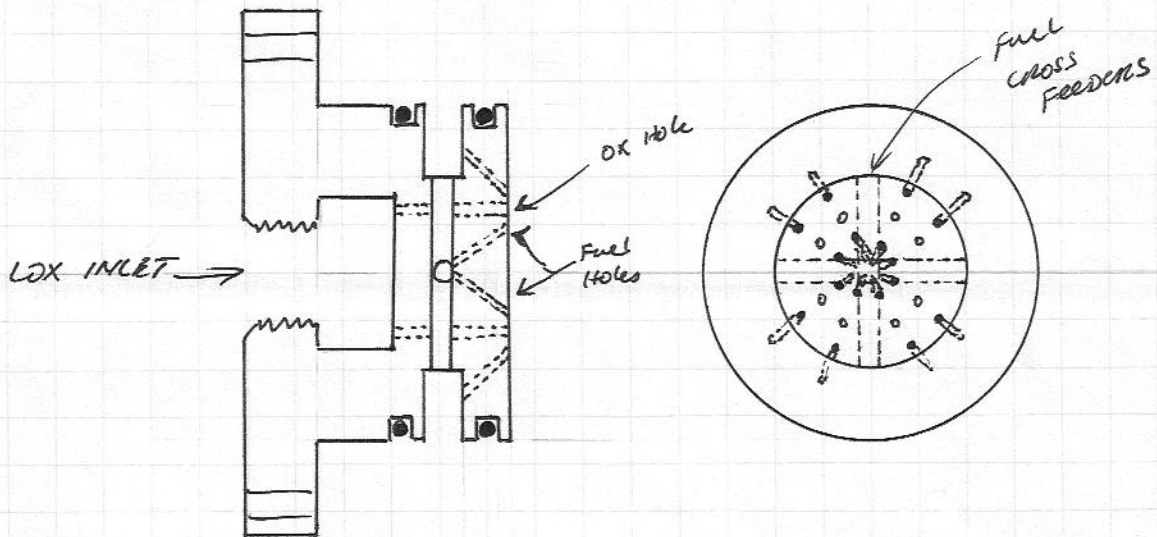
I HOPE THIS INFO IS OF SOME HELP!

GOOD LUCK

Dave C.



1. COAXIAL ELEMENT INJECTOR



( FUEL INLET  
AS PER ABOVE  
DRAWING )

2. TRIPLET (FO-F) INJECTOR