J69 Loco injector feed modification

This document was written by Roger Williams and was originally published by The Colchester Society of Model and Experimental Engineers in Autumn 2020

Some members might be interested in the injector feed mod I recently made to my 5in J69. In my original design, I had the two side water tanks linked across with each other, with a tee feed pipe going down between the frames terminating at an on/off tap connector.

This would then connect two flexible pipes to my driving trolley auxiliary tank. From the pipework, where it passed between the frames, I took off the water feeds to the injectors. When all connected, the theory was that as the side tanks emptied, the trolley tank water level would fall to match the side tank level.......but, as you will have guessed, water will always take the least line of resistance!! On goes the injector, drawing as I subsequently found out, predominantly from the side tanks. When the side tank level got too low, the feed would suck in air and break the injector flow, because the water from the trolley tank couldn't quite match the predominant flow from the side tanks.

 Probably if I had fitted 3 1 /2'' injectors instead of 5'', then the water flows would have been gentler, and could have balanced out a bit better. So, what I did was to build an additional bunker tank, such that the water feeds to the injectors were teed off between the bunker tank and the trolley tank. Now what happens is that the additional buffer capacity [about a cup full] enables the side tanks to drop at a slower rate without any air being sucked into the system, since the bunker tank now balances out the flow from the side tanks and the trolley tank.

If the side tanks empty momentarily, the system still functions perfectly because of the buffer capacity. I can now run such that the side tanks and the trolley tank are pretty nearly in unison......before the mod, I would need to keep topping up the side tanks, even though the trolley tank was near full. Obviously, given time, say at rest in the station, the levels would balance out, but when running and using the injector, the pre-mod system was an aggravation!! If you look at the attached pics, all the above I hope will become a little clearer.