

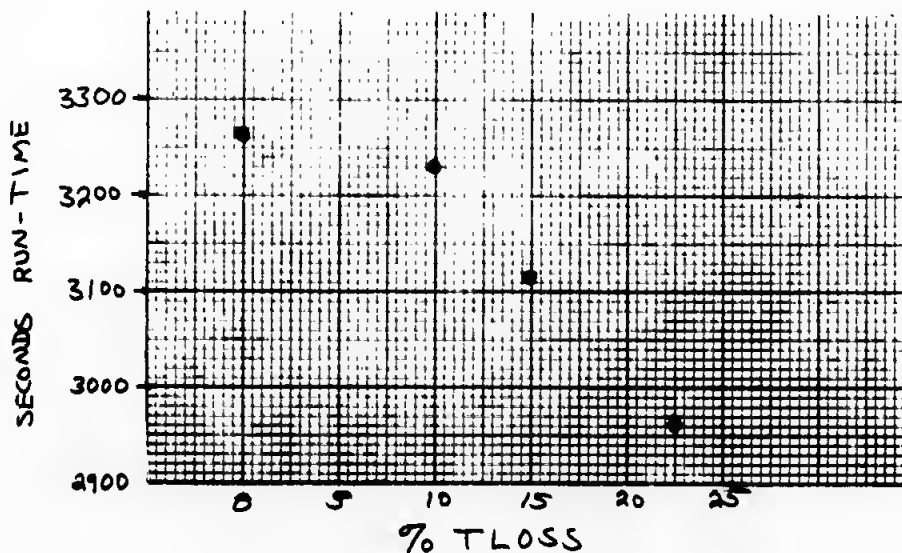
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LUMINARY Memo #163

To: Distribution
From: D. Eyles
Date: 21 July 1970
Subject: Z Lives

An interesting new advantage of ZERLINA type variable guidance period programs has recently been confirmed, and is given here to amuse you.

Above a certain base 360 run-time, and above a certain base TLOSS, run-time is inversely proportional to TLOSS. For the highest TLOSS case observed — a ZERLINA run with 22.5% — run time (for the simulation step alone) was 9% less than for an equivalent run with no TLOSS, a saving of 5 minutes, 2963 seconds versus 3257. A plot of run-time versus TLOSS for four similar runs on ZERLINA 31 is next given:



Less run-time is required for high-TLOSS ZERLINA runs because when guidance period stretches there are fewer AGC computations to be simulated, fewer dumps and clocks, and fewer AGC sensor readings to which the environment must respond. It is evident that until guidance period stretches the AGC total computation load is approximately constant, and so run-time does not drop off until TLOSS exceeds about 10%. With less dense powered-flight programs (e. g. the P40s) this threshold would be higher, but for ascent and aborts it is probably about the same as for descent. Of course TLOSS would have little or no effect on the run time of non-powered-flight programs.

What this all means is that if a ZERLINA type LUMINARY were on-line, a sort of fast-AGC option would be available to testers. TLOSS level does not affect most tests. If these could be run routinely with (say) 20% TLOSS, 360 usage would be benignly impacted.