

To: Don Eyles, Bruce McCoy, Russ Larson,

If we should ever decide to eliminate <sup>PRACTICALLY ALL, OR ONLY</sup> half, of the maximum landing site truncation error, or modify landing site computations for any other reason, here are a couple approaches:

1. During the ignition algorithm, store a permanent landing site vector in platform coordinates and an associated time tag. Each pass in the braking and approach phases update the current landing site from the permanent vector. ~~IN/XXXX ONLY/IN/XXXX~~  
If and only if <sup>non-zero</sup> there is either a landing site redesignation or a/noun69, or perhaps once every 100 seconds to avoid an excessive rotation from the permanent vector, then the permanent vector should be updated and replaced along with its associated time tag. This approach will actually eliminate practically all of the truncation error but requires 8 additional erasables and a substantial rework of the coding.
2. Switch the order of the three ~~XP~~ LAND updates to
  - A. Noun69. At this time, /LAND/ is computed so as to be available later.
  - B. Redesignations. The redesignations should be skipped, saving 100 ms, if no redesignations have been made. This is a reversal of my previous opinion, and is a reflection of the recognition that ~~there~~ the servicer duration is so variable as to be statistical, and anything which shortens it statistically helps. It is not necessary to design for the longest/<sup>possible</sup>servicer cycle, servicer can get behind and later catch up. In the redesignations, there is no point in correcting the redesignated site for lunar radius as this will always be done in the succeeding update for lunar rotation. I.e., the coding

VAD	UNIT
	R
VXSC	VSL1
	/LAND/
STORE	LANDTEMP

should be shortened to

VAD	R
STORE	LANDTEMP .

- C. Landing site update for lunar rotation. This coding may be identical with the existing ~~cond~~ coding except for its location, <sup>A NORMUNIT IS REPLACED BY A UNIT,</sup> and ~~except that the truncation error~~ <sup>IS</sup> ~~is introduced at the~~ <sup>MAXIMUM</sup> ~~should be~~ cut in half. ~~by~~ changing the following coding

BVSU	RTB
	LAND
	NORMUNIT
VXSC	VSL1
	/LAND/
STODL	LANDTEMP

should be changed to

BVSU	UNIT
	LAND
PDDL	SL1
	/LAND/
VXSC	STADR
STODL	LANDTEMP .

Note that in addition to cutting the truncation error in half, the NORMUNIT is replaced by UNIT. This is because ~~there is always more~~ the vector being unitized is

always long enough so that NORMUNIT does exactly the same operation as UNIT does, except it spends a little more time.

Note that with this improvement, halving the truncation error uses no additional words.