L LUNAR AND SOLAR EPHEMERIDES SUBROUTINES USER=S PAGE NO. 1 Eo S3

P0001 LUNAR AND SOLAR EPHEMERIDES SUBROUTINES

R0002 FUNCTIONAL DESCRIPTION

R0003 THESE SUBROUTINES ARE USED TO DETERMINE THE POSITION AND VELOCITY
R0004 VECTORS OF THE SUN AND THE MOON RELATIVE TO THE EARTH AT THE
R0005 SPECIFIED GROUND ELAPSED TIME INPUT BY THE USER.

R0006 THE POSITION OF THE MOON IS STORED IN THE COMPUTER IN THE FORM OF
R0007 A NINTH DEGREE POLYNOMIAL APPROXIMATION WHICH IS VALID OVER A 15
R0008 DAY INTERVAL BEGINNING SHORTLY BEFORE LAUNCH. THEREFORE THE TIME
R0009 INPUT BY THE USER SHOULD FALL WITHIN THIS 15 DAY INTERVAL.

R0010 LSPOS COMPUTES THE POSITION VECTORS OF THE SUN AND THE MOON.

R0011 LUNPOS COMPUTES THE POSITION VECTOR OF THE MOON.

R0012 LUNVEL COMPUTES THE VELOCITY VECTOR OF THE MOON.

R0013 SOLPOS COMPUTES THE POSITION VECTOR OF THE SUN.

R0014 CALLING SEQUENCE

R0015 DLOAD CALL
R0016 TIME GROUND ELAPSED TIME
R0017 SUBROUTINE LSPOS OR LUNPOS OR LUNVEL OR SOLPOS

R0018 INPUT

R0019 1) SPECIFIED GROUND ELAPSED TIME IN CS X B-28 LOADED IN MPAC.

R0020 2) TIMEMO - TIME AT THE CENTER OF THE RANGE OVER WHICH THE LUNAR
R0021 POSITION POLYNOMIAL IS VALID IN CS X B-42.

R0022 3) VECOEM - VECTOR COEFFICIENTS OF THE LUNAR POSITION POLYNOMIAL
R0023 LOADED IN DESCENDING SEQUENCE IN METERS/CS**N X B-2

R0024 4) RESO - POSITION VECTOR OF THE SUN RELATIVE TO THE EARTH AT
R0025 TIMEMO IN METERS X B-38.

R0026 5) VESO - VELOCITY VECTOR OF THE SUN RELATIVE TO THE EARTH AT
R0027 TIMEMO IN METERS/CS X B-9.

R0028 6) OMEGAES - ANGULAR VELOCITY OF THE VECTOR RESO AT TIMEMO IN
R0029 REV/CS X B+28.

R0030 ALL EXCEPT THE FIRST INPUT ARE INCLUDED IN THE PRE-LAUNCH
R0031 ERASABLE DATA LOAD.

R0032 OUTPUT - LSPOS