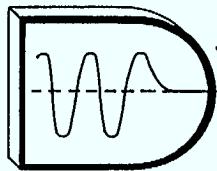


**STRUCTURAL DYNAMICS MODEL
FOR MSAT (MARK II)
WITH VISUALIZATION MATRIX**

[DOC-CR-SP-83-055]



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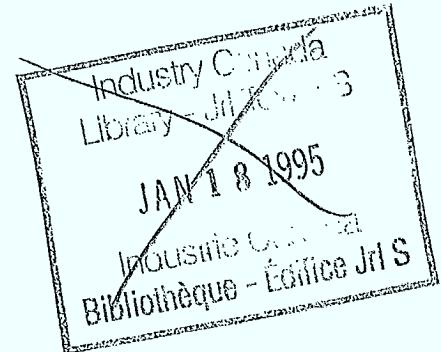
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SUMMARY

This report highlights the derivation and evaluation of the MSAT visualization matrix — the matrix that transforms unconstrained spacecraft modal coordinates into absolute physical coordinates. Both Design Model (Appendix A) and Evaluation Model (Appendix B) visualization matrices are supplied. A new MSAT dynamics model, the *MARK II* version, is also provided (Appendices C through F).

PREFACE

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The assistance of S. Sorocky of Spar/SASD in procuring the necessary substructural model, in the shortest possible time, is also greatly acknowledged.

Finally, the author would like to thank Mrs J. Hughes for typing this report.

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Units and Spelling

This report uses S.I. units and North American Spelling.

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1. INTRODUCTION

While it is generally agreed that the modal equations for a structural dynamics model are the best form to use for computer simulation, the resulting coordinates — modal coordinates — are not very useful for visualizing physical mode shapes. Instead, the preferred coordinates are absolute physical coordinates. What is needed, therefore, is a transformation that converts modal coordinates to absolute physical coordinates. A general form for this transformation, herein called the *visualization matrix*, has been presented in [Hughes 2, 1983]. It is the object of this report to specialize this form so that the resulting matrix applies to the DEMOnstration MSAT space-craft, and then to numerically evaluate the matrix. Ultimately, it will prove necessary to compute an updated Dynamics Model for MSAT, henceforth denoted as the *MARK II* version. The reasons for this new version and its implications also are discussed in this report.

To put this report within the context of structural dynamics visualization discussion in [Hughes 2, 1983], what is being provided here are the details of one specific coordinate conversion module, namely, the one for MSAT.

2. COORDINATE CONVERSION MODULE

In this chapter, the transformation from unconstrained modal coordinates into absolute physical coordinates is described for the MSAT structural dynamics model (Version *MARK II*). Since the theoretical basis for what follows has already been presented in a series of earlier reports ([Hughes 1 & 2, 1983] and [Hughes and Sincarsin, 1983] only those details pertinent to the MSAT coordinate conversion module are repeated here.

2.1 The Visualization Matrix

From [Hughes 2, 1983], it is known that the desired transformation takes the form

$$\underline{q}_A = \underline{V}\underline{n} \quad (2.1)$$

where \underline{q}_A is a set of *absolute physical* coordinates, \underline{n} is a set of *unconstrained modal* coordinates and \underline{V} is a transformation matrix, henceforth called the *visualization* matrix. Furthermore, by partitioning \underline{q}_A and \underline{n} according to those coordinates associated with rigid body motions (subscript r) and those coordinates associated with elastic body motions (subscript e), \underline{V} can be partitioned in the normal manner so that (2.1) becomes

$$\begin{bmatrix} \underline{q}_{Ar} \\ \underline{q}_{Ae} \end{bmatrix} = \begin{bmatrix} \underline{V}_{rr} & \underline{V}_{re} \\ \underline{V}_{er} & \underline{V}_{ee} \end{bmatrix} \begin{bmatrix} \underline{n}_r \\ \underline{n}_e \end{bmatrix} \quad (2.2)$$

Now from [Hughes 1, 1983], an appropriate set of 'rigid' absolute coordinates for MSAT is the translation \underline{w}_b and rotation $\underline{\theta}_b$ of the bus relative to inertial space. Both \underline{w}_b and $\underline{\theta}_b$ are expressed in F_b (with origin O_b), affixed to the bus (see Fig. 1). The 'elastic' absolute coordinates of importance are the absolute displacements, relative to inertial space, of the two MSAT arrays and the two MSAT reflectors. Herein, the absolute displacement of a point P_j in elastic body E_n will be denoted by D_{nj} where $n \in \{a_1, a_2, r_1, r_2\}$ and the subscripts a_1, a_2, r_1 and r_2 refer to the south array, north array, east reflector and west reflector, respectively. These subscripts are chosen to be consistent with [Hughes 1, 1983]. Also, since it is easiest to 'plot' the final absolute coordinates relative to a common frame, it is assumed that all the D_{nj} are expressed in F_b .

In fact, if one assumes the arrays and reflectors to be continua an infinite number of coordinates exist for each structure. As this is an impractical position to take when the ultimate goal is to produce computer-generated spacecraft mode shapes, only a finite number of three-dimensional displacements (m_n) will be retained for each E_n . Whence, for MSAT,

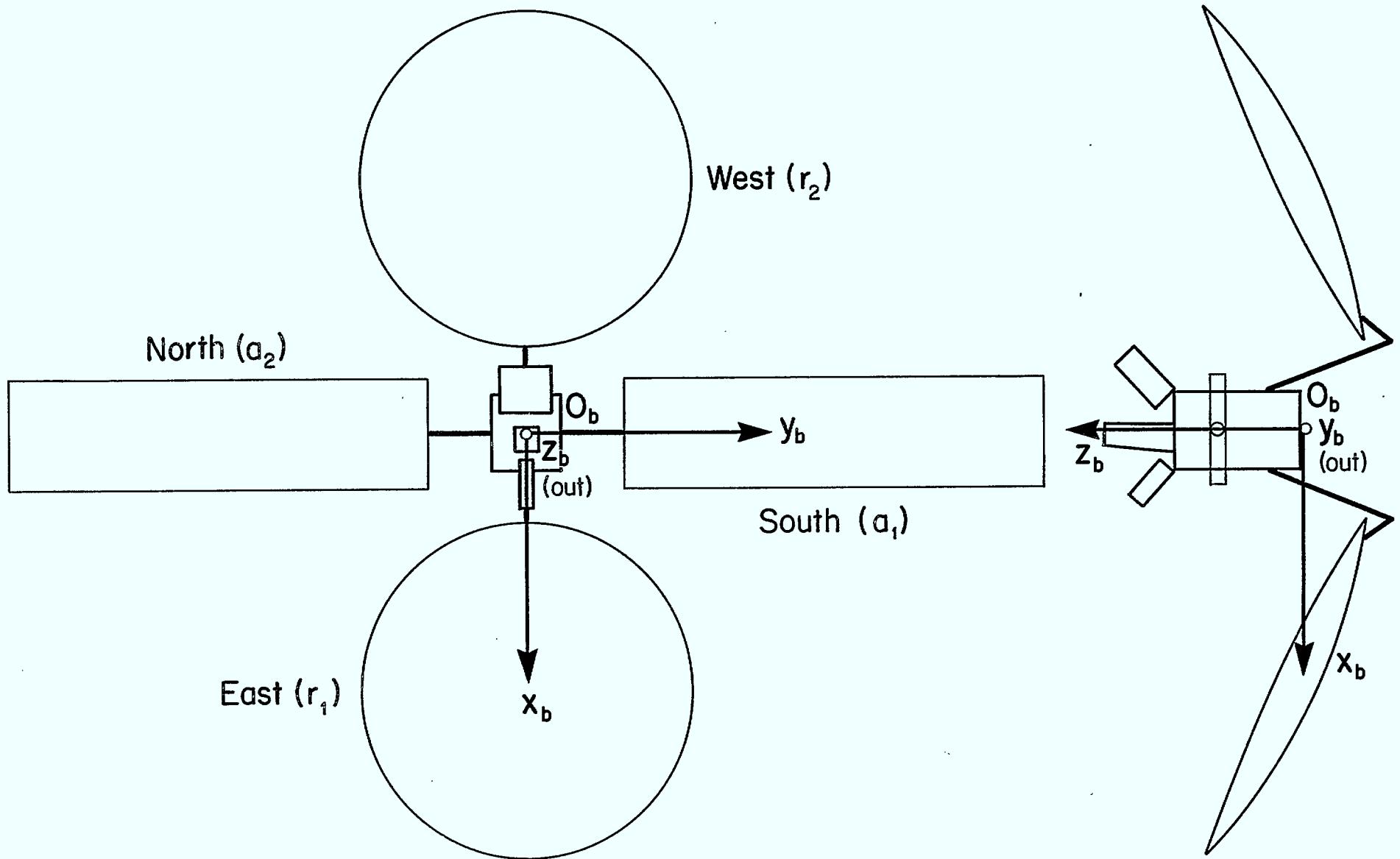


Fig. 1: MSAT Spacecraft

$$\underline{q}_{Ar} = \text{col}\{\underline{w}_b, \underline{\theta}_b\} \quad (2.3)$$

$$\underline{q}_{Ae} = \text{col}\{\underline{q}_{Aa_1}, \underline{q}_{Aa_2}, \underline{q}_{Ar_1}, \underline{q}_{Ar_2}\} \quad (2.4)$$

where

$$\underline{q}_{An} = \text{col}\{\underline{D}_{n_1}, \underline{D}_{n_2}, \dots, \underline{D}_{n_m}\} \quad (2.5)$$

and $n \in \{a_1, a_2, r_1, r_2\}$. This suggests a further partitioning of (2.2):

$$\begin{bmatrix} \underline{q}_{Ar} \\ \underline{q}_{Aa_1} \\ \underline{q}_{Aa_2} \\ \underline{q}_{Ar_1} \\ \underline{q}_{Ar_2} \end{bmatrix} = \begin{bmatrix} \underline{V}_{rr} & \underline{V}_{re} \\ \underline{V}_{era_1} & \underline{V}_{eea_1} \\ \underline{V}_{era_2} & \underline{V}_{eea_2} \\ \underline{V}_{err_1} & \underline{V}_{eer_1} \\ \underline{V}_{err_2} & \underline{V}_{eer_2} \end{bmatrix} \begin{bmatrix} \underline{n}_r \\ \underline{n}_e \end{bmatrix} \quad (2.6)$$

It remains to specify the individual partitions of the visualization matrix.

2.2 The Visualization Matrix Partitions

We know from [Hughes 2, 1983] that the partitions in (2.6) obey the relations

$$\underline{V}_{rr} = \underline{\Gamma}_{rr} \underline{E}_{rr} \quad (2.7)$$

$$\underline{V}_{ern} = \underline{\Gamma}_{ern} \underline{E}_{rr} \quad (2.8)$$

$$\underline{V}_{re} = \underline{\Gamma}_{rr} \underline{E}_{re} \quad (2.9)$$

$$\underline{V}_{een} = \underline{\Gamma}_{ern} \underline{E}_{re} + \underline{\Gamma}_{een} \underline{E}_{neen} \quad (2.10)$$

where the columns of \underline{E} , with

$$\underline{E} = \begin{bmatrix} \underline{E}_{rr} & \underline{E}_{re} \\ \underline{0} & \underline{E}_{eea_1} \\ \underline{0} & \underline{E}_{eea_2} \\ \underline{0} & \underline{E}_{eer_1} \\ \underline{0} & \underline{E}_{eer_2} \end{bmatrix}, \quad (2.11)$$

are the eigenvectors of the *unconstrained* spacecraft modes, \underline{E}_n is the eigenvector matrix for the constrained modes of \underline{E}_n , and $\underline{\Gamma}_{rr}$, $\underline{\Gamma}_{ern}$ and $\underline{\Gamma}_{een}$ are transformations based on the spacecraft geometry. Since \underline{E} is given in Appendices C and E, for the Mark II Design and Evaluation Models, and the \underline{E}_n are known (although not explicitly cited in this report), it is the $\underline{\Gamma}$ transformations that must be determined before \underline{V} can be calculated for MSAT.

To commence, we know from [Hughes 1, 1983] and [Hughes and Sincarsin, 1983] that, for MSAT,

$$\begin{bmatrix} \underline{w}_b \\ \underline{\theta}_b \end{bmatrix} = \begin{bmatrix} \underline{E}_{rr} & \underline{E}_{re} \end{bmatrix} \begin{bmatrix} \underline{n}_r \\ \underline{n}_e \end{bmatrix}. \quad (2.12)$$

Therefore, recalling the chosen \underline{q}_{Ar} from (2.3), it follows from (2.6), (2.7) and (2.9) that

$$\underline{\Gamma}_{rr} = \underline{1} \quad (6 \times 6) \quad (2.13)$$

and that

$$\underline{V}_{rr} = \underline{E}_{rr}; \quad \underline{V}_{re} = \underline{E}_{re} \quad (2.14)$$

where E_{rr} is a 6×6 matrix and E_{re} is either a 6×4 matrix (Design Model) or a 6×11 matrix (Evaluation Model). The determination of Γ_{ern} and Γ_{een} is expedited by the relation ($n \in \{a_1, a_2, r_1, r_2\}$)

$$\underline{d}_{n_j}(r_{n_j}, t) = \underline{w}_n(t) - \underline{r}_{n_j}^X \underline{\theta}_n(t) + \underline{u}_{n_j}(r_{n_j}, t) \quad (2.15)$$

which follows from (3.5) and (3.37) of [Hughes 1, 1983]. Here, \underline{w}_n is the absolute displacement of O_n , the attachment point of E_n to the bus, $\underline{\theta}_n$ is the absolute rotation about O_n and \underline{u}_{n_j} is the small elastic deformation of E_n at the point P_j , located by r_{n_j} relative to O_n (see Fig. 2). Since all the above quantities are assumed to be expressed in F_n , a local reference frame with origin O_n , the absolute displacement \underline{d}_{n_j} of a point P_j is related to the previously defined absolute displacement \underline{D}_{n_j} according to

$$\underline{D}_{n_j} = \underline{C}_{bn} \underline{d}_{n_j} \quad (2.16)$$

where \underline{C}_{bn} is the rotation matrix that takes F_n into F_b . Furthermore, from [Hughes 1, 1983], the following geometric constraints apply for MSAT:

$$\underline{w}_n = \underline{C}_{nb}(\underline{w}_b - \underline{r}_{bn}^X \underline{\theta}_b) \quad (2.17)$$

$$\underline{\theta}_n = \underline{C}_{nb} \underline{\theta}_b \quad (2.18)$$

where \underline{r}_{bn} contains the components of the vector from O_b to O_n , expressed in F_b , and $\underline{C}_{nb} = \underline{C}_{bn}^T$. Whence,

$$\underline{D}_{n_j} = \underline{w}_b - \underline{r}_{bn_j}^X \underline{\theta}_b + \underline{C}_{bn} \underline{u}_{n_j} \quad (2.19)$$

given the definition (see Fig. 2)

$$\underline{r}_{bn_j} \triangleq \underline{r}_{bn} + \underline{C}_{bn} \underline{r}_{n_j} \quad (2.20)$$

and the identities

$$\underline{C}_{pq} \underline{C}_{qp} = \underline{I} \quad (2.21)$$

$$(\underline{C}_{pq} \underline{v})^X = \underline{C}_{pq} \underline{v}^X \underline{C}_{qp} \quad (2.22)$$

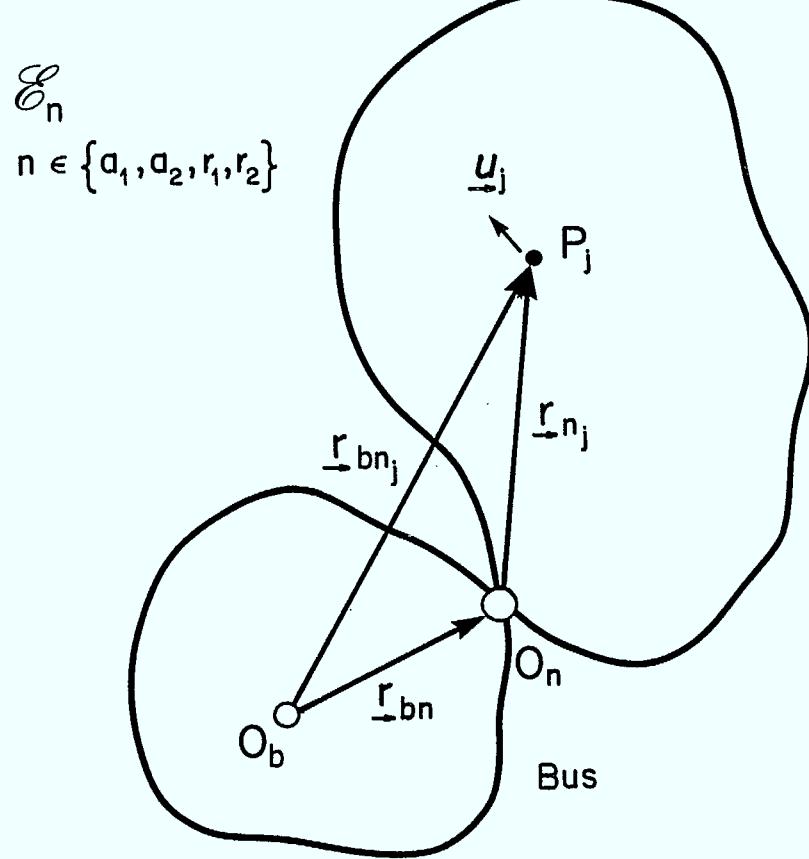


Fig. 2: Position Vector to Displacement Point P_j

It is also known that for the present MSAT model \underline{u}_{n_j} is expanded in terms of the mode shapes (eigenvectors) for E_n where E_n is constrained not to rotate or translate at O_n . That is,

$$\underline{u}_{n_j} = \underline{E}_n \underline{n}_n \quad (2.23)$$

where the *constrained* eigenmatrix \underline{E}_n has been row-partitioned according to the portion of that matrix associated with each \underline{u}_{n_j} ,

$$\underline{E}_n = \begin{bmatrix} \underline{E}_{n_1} \\ \underline{E}_{n_2} \\ \vdots \\ \vdots \\ \underline{E}_{n_{m_n}} \end{bmatrix} \quad (2.24)$$

and \underline{n}_n are the *constrained* modal coordinates for E_n . The matrix \underline{E}_n has dimensions $3m_n \times n_n$, where n_n is the number of modes retained in the substructural model for E_n , and \underline{n}_n is a $n_n \times 1$ column. Now, given (2.24), (2.19) becomes

$$\underline{D}_{n_j} = \underline{w}_b - \underline{r}_{bn}^X \underline{\theta}_b + \underline{C}_{bn} \underline{E}_{n_j} \underline{n}_n \quad (2.25)$$

Whence, from (2.5) it is apparent that

$$\underline{q}_{An} = \begin{bmatrix} 1 & -\underline{r}_{bn_1}^X \\ 1 & -\underline{r}_{bn_2}^X \\ \vdots & \vdots \\ \vdots & \vdots \\ 1 & -\underline{r}_{bn_{m_n}}^X \end{bmatrix} \begin{bmatrix} \underline{w}_b \\ \underline{\theta}_b \end{bmatrix} + \begin{bmatrix} \underline{C}_{bn} & & & \underline{E}_{n_n} \\ & \ddots & & \underline{O} \\ & & \ddots & \underline{C}_{bn} \\ \underline{O} & & & \end{bmatrix} \underline{n}_n \quad (2.26)$$

However, from (2.6), (2.8) and (2.10), we can infer that

$$\underline{q}_{An} = \underline{\Gamma}_{ern} (\underline{E}_{rr} \underline{n}_r + \underline{E}_{re} \underline{n}_e) + \underline{\Gamma}_{een} \underline{E}_{n} \underline{een} \underline{n}_e \quad (2.27)$$

Furthermore, given (2.12) and noting from [Hughes 2, 1983] that

$$\underline{n}_n = \underline{E}_{een} \underline{n}_e \quad (2.28)$$

(2.27) takes the form

$$\underline{q}_{An} = \underline{\Gamma}_{er} \begin{bmatrix} w_b \\ \theta_b \end{bmatrix} + \underline{\Gamma}_{een} \underline{E}_n \underline{n}_n \quad (2.29)$$

Thus, by direct comparison of (2.29) with (2.26) we conclude that

$$\underline{\Gamma}_{ern} = \begin{bmatrix} 1 & -\underline{r}_{bn}^x_1 \\ 1 & -\underline{r}_{bn}^x_2 \\ \cdot & \cdot \\ \cdot & \cdot \\ 1 & -\underline{r}_{bn}^x_{m_n} \end{bmatrix}; \quad \underline{\Gamma}_{een} = \begin{bmatrix} \underline{c}_{bn} & & & \\ & \underline{c}_{bn} & & 0 \\ & & \ddots & \\ 0 & & & \underline{c}_{bn} \end{bmatrix} \quad (2.30)$$

This completes the specification of the visualization matrix \underline{V} , since \underline{V}_{ern} and \underline{V}_{een} can now be explicitly expressed via (2.8) and (2.10). The matrices $\underline{\Gamma}_{ern}$ and $\underline{\Gamma}_{een}$ have dimensions $3m_n \times 6$ and $3m_n \times 3m_n$, respectively. Thus \underline{V}_{ern} and \underline{V}_{een} are $3m_n \times 6$ and $3m_n \times n_n$ in dimension, which implies \underline{V} is a $6 + \sum_n 3m_n \times 10$ matrix for the Mark II Design Model and a $6 + \sum_n 3m_n \times 17$ matrix for the Mark II Evaluation Model.

2.3 The Visualization Matrix for MSAT

Before \underline{V} can be numerically generated the actual locations of the displacements points P_j (or nodes) assumed for each substructure E_n must be specified. In fact, this information is contained in r_{bnj} , since r_{bnj} locates P_j relative to O_b (recall Fig. 2). The P_j locations adopted for each substructure of the present MSAT model are given in Fig. 3. Tables 1 and 2 list the components of r_{bnj} for the P_j 's of each substructure. All the r_{bnj} are expressed in the bus frame F_b . The only remaining information to be specified before \underline{V} can be computed are the rotation matrices $C_{bn} \ n \in \{a_1, a_2, r_1, r_2\}$. These are provided in Table 3. Given the above information, plus E from Appendices C and E and the E_n provided by Spar Aerospace (Montreal) the visualization matrix partitions V_{rr} , V_{ern} , V_{re} and V_{een} , for the Mark II Design and Evaluation Models are as shown in Appendices A and B, respectively.

3. CURRENT MSAT DYNAMICS MODEL

As in the previous chapter, the desire here is to highlight the differences between the current MSAT dynamics model, henceforth referred to as Version *MARK II*, and the previous (*MARK I*) Version of the model. In this spirit, once again the tendency will be to reference the pertinent sections of earlier reports rather than repeat their contents here. In particular, all the equations presented in [Hughes 1 & 2, 1983] and [Hughes and Sincarsin, 1983] are still valid for the *MARK II* model. The differences between the *MARK I* and *MARK II* models lie solely with the choice of substructural models. In the case of the version, a 50-mode finite-element model of a Convair reflector, developed by Spar Montreal, was used to model both the east and west reflectors. Of these modes only 18 were selected for use in modeling MSAT. This selection was based on the extent to which well-known combined-frequency-momentum modal identities were satisfied [Hughes, 1980]. Modes were

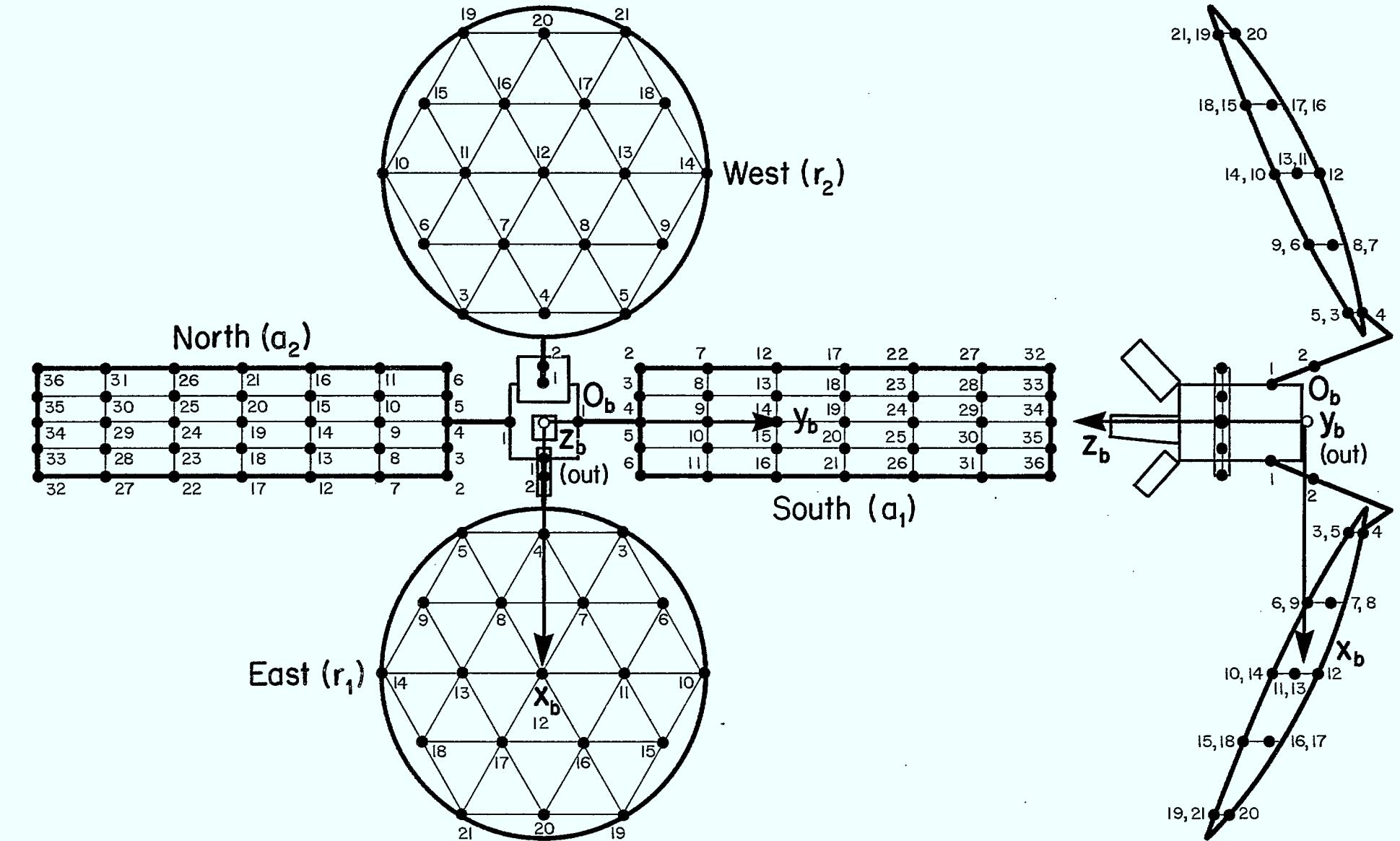


Fig. 3: Displacement Point Locations

Table 1

Position Vectors for Solar Array Displacement Points

SOUTH ARRAY				NORTH ARRAY			
NODE	(m _{a1} = 36)			NODE	(m _{a2} = 36)		
	X (M)	Y (M)	Z (M)		X (M)	Y (M)	Z (M)
1	0.000	0.875	1.600	1	0.000	-0.875	1.600
2	-1.431	2.614	1.600	2	1.431	-2.614	1.600
3	-0.715	2.614	1.600	3	0.715	-2.614	1.600
4	0.000	2.614	1.600	4	0.000	-2.614	1.600
5	0.715	2.614	1.600	5	-0.715	-2.614	1.600
6	1.431	2.614	1.600	6	-1.431	-2.614	1.600
7	-1.431	4.225	1.600	7	1.431	-4.225	1.600
8	-0.715	4.225	1.600	8	0.715	-4.225	1.600
9	0.000	4.225	1.600	9	0.000	-4.225	1.600
10	0.715	4.225	1.600	10	-0.715	-4.225	1.600
11	1.431	4.225	1.600	11	-1.431	-4.225	1.600
12	-1.431	5.835	1.600	12	1.431	-5.835	1.600
13	-0.715	5.835	1.600	13	0.715	-5.835	1.600
14	0.000	5.835	1.600	14	0.000	-5.835	1.600
15	0.715	5.835	1.600	15	-0.715	-5.835	1.600
16	1.431	5.835	1.600	16	-1.431	-5.835	1.600
17	-1.431	7.446	1.600	17	1.431	-7.446	1.600
18	-0.715	7.446	1.600	18	0.715	-7.446	1.600
19	0.000	7.446	1.600	19	0.000	-7.446	1.600
20	0.715	7.446	1.600	20	-0.715	-7.446	1.600
21	1.431	7.446	1.600	21	-1.431	-7.446	1.600
22	-1.431	9.057	1.600	22	1.431	-9.057	1.600
23	-0.715	9.057	1.600	23	0.715	-9.057	1.600
24	0.000	9.057	1.600	24	0.000	-9.057	1.600
25	0.715	9.057	1.600	25	-0.715	-9.057	1.600
26	1.431	9.057	1.600	26	-1.431	-9.057	1.600
27	-1.431	10.667	1.600	27	1.431	-10.667	1.600
28	-0.715	10.667	1.600	28	0.715	-10.667	1.600
29	0.000	10.667	1.600	29	0.000	-10.667	1.600
30	0.715	10.667	1.600	30	-0.715	-10.667	1.600
31	1.431	10.667	1.600	31	-1.431	-10.667	1.600
32	-1.431	12.278	1.600	32	1.431	-12.278	1.600
33	-0.715	12.278	1.600	33	0.715	-12.278	1.600
34	0.000	12.278	1.600	34	0.000	-12.278	1.600
35	0.715	12.278	1.600	35	-0.715	-12.278	1.600
36	1.431	12.278	1.600	36	-1.431	-12.278	1.600

Table 2

Position Vectors for Reflector Displacement Points

EAST REFLECTOR $(m_{r_1} = 21)$				WEST REFLECTOR $(m_{r_2} = 21)$			
NODE	X (M)	Y (M)	Z (M)	NODE	X (M)	Y (M)	Z (M)
1	1. 060	0. 000	0. 600	1	-1. 060	0. 000	0. 600
2	1. 420	0. 000	-0. 320	2	-1. 420	0. 000	-0. 320
3	2. 280	2. 680	-2. 213	3	-2. 280	-2. 680	-2. 213
4	2. 280	0. 000	-2. 481	4	-2. 280	0. 000	-2. 481
5	2. 280	-2. 680	-2. 213	5	-2. 280	2. 680	-2. 213
6	4. 600	4. 020	-1. 553	6	-4. 600	-4. 020	-1. 553
7	4. 600	1. 340	-2. 088	7	-4. 600	-1. 340	-2. 088
8	4. 600	-1. 340	-2. 088	8	-4. 600	1. 340	-2. 088
9	4. 600	-4. 020	-1. 553	9	-4. 600	4. 020	-1. 553
10	6. 920	5. 360	-0. 356	10	-6. 920	-5. 360	-0. 356
11	6. 920	2. 680	-1. 160	11	-6. 920	-2. 680	-1. 160
12	6. 920	0. 000	-1. 428	12	-6. 920	0. 000	-1. 428
13	6. 920	-2. 680	-1. 160	13	-6. 920	2. 680	-1. 160
14	6. 920	-5. 360	-0. 356	14	-6. 920	5. 360	-0. 356
15	9. 240	4. 020	0. 304	15	-9. 240	-4. 020	0. 304
16	9. 240	1. 340	-0. 232	16	-9. 240	-1. 340	-0. 232
17	9. 240	-1. 340	-0. 232	17	-9. 240	1. 340	-0. 232
18	9. 240	-4. 020	0. 304	18	-9. 240	4. 020	0. 304
19	11. 560	2. 680	1. 498	19	-11. 560	-2. 680	1. 498
20	11. 560	0. 000	1. 231	20	-11. 560	0. 000	1. 231
21	11. 560	-2. 680	1. 498	21	-11. 560	2. 680	1. 498

Table 3

Substructure Rotation Matrices

Arrays:

$$C_{ba_1} = \begin{bmatrix} -\sin\eta_1 & 0 & \cos\eta_1 \\ 0 & 1 & 0 \\ -\cos\eta_1 & 0 & -\sin\eta_1 \end{bmatrix}$$

$$\eta_1 = \eta_2 = 270^\circ$$

$$C_{ba_2} = \begin{bmatrix} \sin\eta_2 & 0 & \cos\eta_2 \\ 0 & -1 & 0 \\ \cos\eta_2 & 0 & -\sin\eta_2 \end{bmatrix}$$

Reflectors:

$$C_{br_1} = \begin{bmatrix} 0 & 1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$C_{br_2} = \begin{bmatrix} 0 & 1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

retained until the error in the identities was less than 0.1%. The same reflector model also was used in the *MARK II* version.

The solar array models used in each version, however, are different. The *MARK I* model uses a pre-truncated 38-mode finite-element model of an L-SAT type array, provided by Spar Toronto. Again, both the north and south array are assumed identical. Also, only 27 of the possible 38 modes provided were retained, again based on the modal identities previously alluded to. The same error limit as that used for the reflectors was employed for the solar arrays. It should be stressed that a modal *selection* rather than a modal truncation results from the application of the modal identities.

In the current *MARK II* version, a somewhat simplified version of the previous array model had to be used. This was necessitated by financial restrictions arising from the request that Spar provide the eigenvectors necessary to compute the visualization matrix, as well as the natural frequencies and modal momenta for the solar array. As a consequence, a 'homogeneous' array model which involved a less detailed modeling of the wires in the array blanket was provided. While the natural frequencies of this blanket are similar to those of the earlier model, some changes appear in the modal momenta. One possibility is that some modes with very similar frequencies had 'switched' mode shapes, a supposition supported in part by the final *MARK II* version numerical values. A second, and somewhat more drastic difference, is that the homogeneous array model had already been truncated by Spar to 15 rather than 38 modes. Obviously it was impossible to retain 27 array modes in the *MARK II* version. In fact, all 15 modes were retained, with the knowledge that ultimately a slightly less accurate dynamics model would result. This was deemed acceptable, however, since the use of 15 rather than 27 substructural array modes implied that the use of the *MARK I* unconstrained spacecraft eigenmatrix E would not be reasonable in computing the visualization matrix V. It was decided, therefore, to

generate an entirely consistent, albeit slightly less accurate, *MARK II* version, complete with the corresponding visualization matrix.

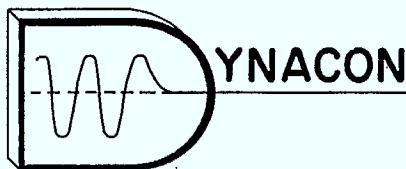
A direct comparison of the *MARK I* model [Hughes and Sincarsin, 1983] and the *MARK II* model, provided in Appendices C, D, E and F, shows good agreement. The most striking difference is that the character of the first and second modes appears to have been reversed. This is not surprising given how numerically close the natural frequencies are for the two modes, and given the apparent mode reversals in the new solar array model. It is reassuring to note, however, that the essential features of the *MARK I* version have been retained.

4. CONCLUDING REMARKS

The visualization matrix for the DEMOnstration MSAT space-craft has been derived and computed, using the eigenvector matrix from a newly computed MSAT Dynamics Model (Version *MARK II*). The result is a self-consistent model that is capable of representing, in absolute physical coordinates, the unconstrained mode shapes for DEMO MSAT.

5. REFERENCES

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2. Hughes, P. C. "Generic Structural Modeling of the Demonstration MSAT Spacecraft," Dynacon Report MSAT-10 [DOC-CR-SP-83-006], February, 1983.
3. Hughes, P. C. "Coordinate Alternatives for Flexible Spacecraft Dynamics Analysis," Dynacon Report MSAT-12, [DOC-CR-SP-83-049], September, 1983.
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Sincarsin, G. B. "Structural Dynamics Model for MSAT (MARK I)," Dynacon Report MSAT-11, [DOC-CR-SP-83-038], July, 1983.



APPENDIX A

MSAT DYNAMICS MODEL

MARK II

(DESIGN MODEL: $N_e = 4$)

Visualization Matrix Partitions

$$\underline{V} = \begin{bmatrix} V_{rr} & V_{re} \\ V_{era_1} & V_{eea_1} \\ V_{era_2} & V_{eea_2} \\ V_{err_1} & V_{eer_1} \\ V_{err_2} & V_{eer_2} \end{bmatrix}$$

*** VRR MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-1.474D-02	3.376D-05
2	0.000D+00	2.641D-02	0.000D+00	1.332D-02	-1.064D-05	1.513D-05
3	0.000D+00	0.000D+00	2.641D-02	0.000D+00	5.822D-05	-1.334D-07
4	0.000D+00	0.000D+00	0.000D+00	9.617D-03	-7.683D-06	4.422D-05
5	0.000D+00	0.000D+00	0.000D+00	0.000D+00	1.064D-02	-2.438D-05
6	0.000D+00	0.000D+00	0.000D+00	0.000D+00	0.000D+00	8.427D-03

*** VERA1 MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-7. 379D-03
2	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
3	0. 000D+00	0. 000D+00	2. 641D-02	8. 415D-03	5. 150D-05	3. 856D-05
4	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-2. 203D-02
5	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
6	0. 000D+00	0. 000D+00	2. 641D-02	2. 514D-02	1. 527D-02	8. 058D-05
7	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-2. 203D-02
8	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
9	0. 000D+00	0. 000D+00	2. 641D-02	2. 514D-02	7. 653D-03	9. 802D-05
10	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-2. 203D-02
11	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
12	0. 000D+00	0. 000D+00	2. 641D-02	2. 514D-02	3. 814D-05	1. 155D-04
13	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-2. 203D-02
14	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
15	0. 000D+00	0. 000D+00	2. 641D-02	2. 514D-02	-7. 577D-03	1. 329D-04
16	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-2. 203D-02
17	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
18	0. 000D+00	0. 000D+00	2. 641D-02	2. 514D-02	-1. 519D-02	1. 504D-04
19	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-3. 561D-02
20	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
21	0. 000D+00	0. 000D+00	2. 641D-02	4. 063D-02	1. 526D-02	1. 518D-04
22	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-3. 561D-02
23	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
24	0. 000D+00	0. 000D+00	2. 641D-02	4. 063D-02	7. 641D-03	1. 692D-04
25	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-3. 561D-02
26	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
27	0. 000D+00	0. 000D+00	2. 641D-02	4. 063D-02	2. 577D-05	1. 867D-04
28	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-3. 561D-02
29	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
30	0. 000D+00	0. 000D+00	2. 641D-02	4. 063D-02	-7. 589D-03	2. 041D-04
31	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-3. 561D-02
32	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
33	0. 000D+00	0. 000D+00	2. 641D-02	4. 063D-02	-1. 520D-02	2. 216D-04
34	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-4. 918D-02
35	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
36	0. 000D+00	0. 000D+00	2. 641D-02	5. 612D-02	1. 524D-02	2. 230D-04
37	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-4. 918D-02
38	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
39	0. 000D+00	0. 000D+00	2. 641D-02	5. 612D-02	7. 628D-03	2. 405D-04
40	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-4. 918D-02
41	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
42	0. 000D+00	0. 000D+00	2. 641D-02	5. 612D-02	1. 339D-05	2. 579D-04
43	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-4. 918D-02
44	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
45	0. 000D+00	0. 000D+00	2. 641D-02	5. 612D-02	-7. 601D-03	2. 754D-04
46	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-4. 918D-02
47	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
48	0. 000D+00	0. 000D+00	2. 641D-02	5. 612D-02	-1. 522D-02	2. 928D-04
49	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-6. 276D-02
50	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02

ROW \ COL	1	2	3	4	5	6
51	0. 000D+00	0. 000D+00	2. 641D-02	7. 161D-02	1. 523D-02	2. 943D-04
52	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-6. 276D-02
53	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
54	0. 000D+00	0. 000D+00	2. 641D-02	7. 161D-02	7. 616D-03	3. 117D-04
55	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-6. 276D-02
56	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
57	0. 000D+00	0. 000D+00	2. 641D-02	7. 161D-02	1. 017D-06	3. 291D-04
58	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-6. 276D-02
59	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
60	0. 000D+00	0. 000D+00	2. 641D-02	7. 161D-02	-7. 614D-03	3. 466D-04
61	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-6. 276D-02
62	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
63	0. 000D+00	0. 000D+00	2. 641D-02	7. 161D-02	-1. 523D-02	3. 640D-04
64	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-7. 633D-02
65	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
66	0. 000D+00	0. 000D+00	2. 641D-02	8. 710D-02	1. 522D-02	3. 655D-04
67	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-7. 633D-02
68	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
69	0. 000D+00	0. 000D+00	2. 641D-02	8. 710D-02	7. 604D-03	3. 829D-04
70	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-7. 633D-02
71	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
72	0. 000D+00	0. 000D+00	2. 641D-02	8. 710D-02	-1. 136D-05	4. 004D-04
73	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-7. 633D-02
74	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
75	0. 000D+00	0. 000D+00	2. 641D-02	8. 710D-02	-7. 626D-03	4. 178D-04
76	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-7. 633D-02
77	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
78	0. 000D+00	0. 000D+00	2. 641D-02	8. 710D-02	-1. 524D-02	4. 353D-04
79	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-8. 990D-02
80	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
81	0. 000D+00	0. 000D+00	2. 641D-02	1. 026D-01	1. 521D-02	4. 367D-04
82	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-8. 990D-02
83	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
84	0. 000D+00	0. 000D+00	2. 641D-02	1. 026D-01	7. 591D-03	4. 542D-04
85	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-8. 990D-02
86	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
87	0. 000D+00	0. 000D+00	2. 641D-02	1. 026D-01	-2. 373D-05	4. 716D-04
88	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-8. 990D-02
89	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
90	0. 000D+00	0. 000D+00	2. 641D-02	1. 026D-01	-7. 639D-03	4. 890D-04
91	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-8. 990D-02
92	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
93	0. 000D+00	0. 000D+00	2. 641D-02	1. 026D-01	-1. 525D-02	5. 065D-04
94	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-1. 035D-01
95	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
96	0. 000D+00	0. 000D+00	2. 641D-02	1. 181D-01	1. 519D-02	5. 079D-04
97	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-1. 035D-01
98	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
99	0. 000D+00	0. 000D+00	2. 641D-02	1. 181D-01	7. 579D-03	5. 254D-04
100	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-1. 035D-01

ROW \ COL	1	2	3	4	5	6
101	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
102	0. 000D+00	0. 000D+00	2. 641D-02	1. 181D-01	-3. 611D-05	5. 428D-04
103	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-1. 035D-01
104	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
105	0. 000D+00	0. 000D+00	2. 641D-02	1. 181D-01	-7. 651D-03	5. 603D-04
106	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-1. 035D-01
107	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
108	0. 000D+00	0. 000D+00	2. 641D-02	1. 181D-01	-1. 527D-02	5. 777D-04

*** VERA2 MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	7. 369D-03
2	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
3	0. 000D+00	0. 000D+00	2. 641D-02	-8. 415D-03	6. 495D-05	-3. 883D-05
4	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	2. 202D-02
5	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
6	0. 000D+00	0. 000D+00	2. 641D-02	-2. 514D-02	-1. 515D-02	-8. 084D-05
7	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	2. 202D-02
8	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
9	0. 000D+00	0. 000D+00	2. 641D-02	-2. 514D-02	-7. 537D-03	-9. 829D-05
10	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	2. 202D-02
11	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
12	0. 000D+00	0. 000D+00	2. 641D-02	-2. 514D-02	7. 831D-05	-1. 157D-04
13	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	2. 202D-02
14	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
15	0. 000D+00	0. 000D+00	2. 641D-02	-2. 514D-02	7. 693D-03	-1. 332D-04
16	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	2. 202D-02
17	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
18	0. 000D+00	0. 000D+00	2. 641D-02	-2. 514D-02	1. 531D-02	-1. 506D-04
19	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	3. 560D-02
20	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
21	0. 000D+00	0. 000D+00	2. 641D-02	-4. 063D-02	-1. 514D-02	-1. 521D-04
22	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	3. 560D-02
23	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
24	0. 000D+00	0. 000D+00	2. 641D-02	-4. 063D-02	-7. 524D-03	-1. 695D-04
25	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	3. 560D-02
26	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
27	0. 000D+00	0. 000D+00	2. 641D-02	-4. 063D-02	9. 068D-05	-1. 870D-04
28	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	3. 560D-02
29	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
30	0. 000D+00	0. 000D+00	2. 641D-02	-4. 063D-02	7. 706D-03	-2. 044D-04
31	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	3. 560D-02
32	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
33	0. 000D+00	0. 000D+00	2. 641D-02	-4. 063D-02	1. 532D-02	-2. 218D-04
34	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	4. 917D-02
35	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
36	0. 000D+00	0. 000D+00	2. 641D-02	-5. 612D-02	-1. 513D-02	-2. 233D-04
37	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	4. 917D-02
38	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
39	0. 000D+00	0. 000D+00	2. 641D-02	-5. 612D-02	-7. 512D-03	-2. 407D-04
40	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	4. 917D-02
41	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
42	0. 000D+00	0. 000D+00	2. 641D-02	-5. 612D-02	1. 031D-04	-2. 582D-04
43	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	4. 917D-02
44	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
45	0. 000D+00	0. 000D+00	2. 641D-02	-5. 612D-02	7. 718D-03	-2. 756D-04
46	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	4. 917D-02
47	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
48	0. 000D+00	0. 000D+00	2. 641D-02	-5. 612D-02	1. 533D-02	-2. 931D-04
49	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	6. 274D-02
50	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02

ROW \ COL	1	2	3	4	5	6
51	0. 000D+00	0. 000D+00	2. 641D-02	-7. 161D-02	-1. 511D-02	-2. 945D-04
52	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	6. 274D-02
53	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
54	0. 000D+00	0. 000D+00	2. 641D-02	-7. 161D-02	-7. 499D-03	-3. 120D-04
55	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	6. 274D-02
56	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
57	0. 000D+00	0. 000D+00	2. 641D-02	-7. 161D-02	1. 154D-04	-3. 294D-04
58	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	6. 274D-02
59	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
60	0. 000D+00	0. 000D+00	2. 641D-02	-7. 161D-02	7. 730D-03	-3. 469D-04
61	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	6. 274D-02
62	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
63	0. 000D+00	0. 000D+00	2. 641D-02	-7. 161D-02	1. 535D-02	-3. 643D-04
64	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	7. 632D-02
65	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
66	0. 000D+00	0. 000D+00	2. 641D-02	-8. 710D-02	-1. 510D-02	-3. 658D-04
67	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	7. 632D-02
68	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
69	0. 000D+00	0. 000D+00	2. 641D-02	-8. 710D-02	-7. 487D-03	-3. 832D-04
70	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	7. 632D-02
71	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
72	0. 000D+00	0. 000D+00	2. 641D-02	-8. 710D-02	1. 278D-04	-4. 006D-04
73	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	7. 632D-02
74	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
75	0. 000D+00	0. 000D+00	2. 641D-02	-8. 710D-02	7. 743D-03	-4. 181D-04
76	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	7. 632D-02
77	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
78	0. 000D+00	0. 000D+00	2. 641D-02	-8. 710D-02	1. 536D-02	-4. 355D-04
79	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	8. 989D-02
80	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
81	0. 000D+00	0. 000D+00	2. 641D-02	-1. 026D-01	-1. 509D-02	-4. 370D-04
82	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	8. 989D-02
83	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
84	0. 000D+00	0. 000D+00	2. 641D-02	-1. 026D-01	-7. 475D-03	-4. 544D-04
85	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	8. 989D-02
86	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
87	0. 000D+00	0. 000D+00	2. 641D-02	-1. 026D-01	1. 402D-04	-4. 719D-04
88	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	8. 989D-02
89	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
90	0. 000D+00	0. 000D+00	2. 641D-02	-1. 026D-01	7. 755D-03	-4. 893D-04
91	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	8. 989D-02
92	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
93	0. 000D+00	0. 000D+00	2. 641D-02	-1. 026D-01	1. 537D-02	-5. 068D-04
94	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	1. 035D-01
95	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
96	0. 000D+00	0. 000D+00	2. 641D-02	-1. 181D-01	-1. 508D-02	-5. 082D-04
97	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	1. 035D-01
98	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
99	0. 000D+00	0. 000D+00	2. 641D-02	-1. 181D-01	-7. 462D-03	-5. 256D-04
100	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	1. 035D-01

ROW \ COL	1	2	3	4	5	6
101	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
102	0. 000D+00	0. 000D+00	2. 641D-02	-1. 181D-01	1. 526D-04	-5. 431D-04
103	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	1. 035D-01
104	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
105	0. 000D+00	0. 000D+00	2. 641D-02	-1. 181D-01	7. 767D-03	-5. 605D-04
106	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	1. 035D-01
107	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
108	0. 000D+00	0. 000D+00	2. 641D-02	-1. 181D-01	1. 538D-02	-5. 780D-04

*** VERR1 MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-8. 350D-03	1. 913D-05
2	0. 000D+00	2. 641D-02	0. 000D+00	7. 546D-03	-6. 028D-06	8. 922D-03
3	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	-1. 122D-02	2. 571D-05
4	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 814D-02	4. 156D-05
5	0. 000D+00	2. 641D-02	0. 000D+00	1. 639D-02	-1. 310D-05	1. 200D-02
6	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	-1. 505D-02	3. 449D-05
7	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 829D-02	-2. 250D-02
8	0. 000D+00	2. 641D-02	0. 000D+00	3. 460D-02	-2. 764D-05	1. 933D-02
9	0. 000D+00	0. 000D+00	2. 641D-02	2. 577D-02	-2. 423D-02	1. 740D-04
10	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-4. 114D-02	9. 424D-05
11	0. 000D+00	2. 641D-02	0. 000D+00	3. 717D-02	-2. 970D-05	1. 934D-02
12	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	-2. 421D-02	5. 545D-05
13	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 829D-02	2. 267D-02
14	0. 000D+00	2. 641D-02	0. 000D+00	3. 460D-02	-2. 764D-05	1. 933D-02
15	0. 000D+00	0. 000D+00	2. 641D-02	-2. 577D-02	-2. 419D-02	-6. 306D-05
16	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 126D-02	-3. 381D-02
17	0. 000D+00	2. 641D-02	0. 000D+00	2. 825D-02	-2. 257D-05	3. 885D-02
18	0. 000D+00	0. 000D+00	2. 641D-02	3. 866D-02	-4. 893D-02	2. 898D-04
19	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 696D-02	-1. 121D-02
20	0. 000D+00	2. 641D-02	0. 000D+00	3. 340D-02	-2. 668D-05	3. 887D-02
21	0. 000D+00	0. 000D+00	2. 641D-02	1. 289D-02	-4. 891D-02	1. 713D-04
22	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 696D-02	1. 138D-02
23	0. 000D+00	2. 641D-02	0. 000D+00	3. 340D-02	-2. 668D-05	3. 887D-02
24	0. 000D+00	0. 000D+00	2. 641D-02	-1. 289D-02	-4. 889D-02	5. 276D-05
25	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 126D-02	3. 395D-02
26	0. 000D+00	2. 641D-02	0. 000D+00	2. 825D-02	-2. 257D-05	3. 885D-02
27	0. 000D+00	0. 000D+00	2. 641D-02	-3. 866D-02	-4. 887D-02	-6. 576D-05
28	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 853D-02	-4. 513D-02
29	0. 000D+00	2. 641D-02	0. 000D+00	1. 674D-02	-1. 337D-05	5. 835D-02
30	0. 000D+00	0. 000D+00	2. 641D-02	5. 155D-02	-7. 363D-02	4. 056D-04
31	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-2. 708D-02	-2. 252D-02
32	0. 000D+00	2. 641D-02	0. 000D+00	2. 447D-02	-1. 955D-05	5. 838D-02
33	0. 000D+00	0. 000D+00	2. 641D-02	2. 577D-02	-7. 361D-02	2. 871D-04
34	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-2. 993D-02	6. 857D-05
35	0. 000D+00	2. 641D-02	0. 000D+00	2. 705D-02	-2. 161D-05	5. 840D-02
36	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	-7. 359D-02	1. 686D-04
37	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-2. 708D-02	2. 265D-02
38	0. 000D+00	2. 641D-02	0. 000D+00	2. 447D-02	-1. 955D-05	5. 838D-02
39	0. 000D+00	0. 000D+00	2. 641D-02	-2. 577D-02	-7. 357D-02	5. 006D-05
40	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 853D-02	4. 521D-02
41	0. 000D+00	2. 641D-02	0. 000D+00	1. 674D-02	-1. 337D-05	5. 835D-02
42	0. 000D+00	0. 000D+00	2. 641D-02	-5. 155D-02	-7. 355D-02	-6. 846D-05
43	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 150D-02	-3. 385D-02
44	0. 000D+00	2. 641D-02	0. 000D+00	1. 039D-02	-8. 302D-06	7. 787D-02
45	0. 000D+00	0. 000D+00	2. 641D-02	3. 866D-02	-9. 831D-02	4. 029D-04
46	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 721D-02	-1. 125D-02
47	0. 000D+00	2. 641D-02	0. 000D+00	1. 555D-02	-1. 242D-05	7. 789D-02
48	0. 000D+00	0. 000D+00	2. 641D-02	1. 289D-02	-9. 829D-02	2. 844D-04
49	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 721D-02	1. 133D-02
50	0. 000D+00	2. 641D-02	0. 000D+00	1. 555D-02	-1. 242D-05	7. 789D-02

ROW \ COL	1	2	3	4	5	6
51	0. 000D+00	0. 000D+00	2. 641D-02	-1. 289D-02	-9. 827D-02	1. 659D-04
52	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 150D-02	3. 390D-02
53	0. 000D+00	2. 641D-02	0. 000D+00	1. 039D-02	-8. 302D-06	7. 787D-02
54	0. 000D+00	0. 000D+00	2. 641D-02	-3. 866D-02	-9. 825D-02	4. 736D-05
55	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	1. 207D-03	-2. 259D-02
56	0. 000D+00	2. 641D-02	0. 000D+00	-1. 091D-03	8. 712D-07	9. 737D-02
57	0. 000D+00	0. 000D+00	2. 641D-02	2. 577D-02	-1. 230D-01	4. 002D-04
58	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 635D-03	3. 745D-06
59	0. 000D+00	2. 641D-02	0. 000D+00	1. 477D-03	-1. 180D-06	9. 738D-02
60	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	-1. 230D-01	2. 817D-04
61	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	1. 207D-03	2. 258D-02
62	0. 000D+00	2. 641D-02	0. 000D+00	-1. 091D-03	8. 712D-07	9. 737D-02
63	0. 000D+00	0. 000D+00	2. 641D-02	-2. 577D-02	-1. 230D-01	1. 632D-04

*** VERR2 MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-8. 350D-03	1. 913D-05
2	0. 000D+00	2. 641D-02	0. 000D+00	7. 546D-03	-6. 028D-06	-8. 944D-03
3	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	1. 134D-02	-2. 598D-05
4	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 814D-02	4. 156D-05
5	0. 000D+00	2. 641D-02	0. 000D+00	1. 639D-02	-1. 310D-05	-1. 194D-02
6	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	1. 517D-02	-3. 475D-05
7	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 829D-02	2. 267D-02
8	0. 000D+00	2. 641D-02	0. 000D+00	3. 460D-02	-2. 764D-05	-1. 910D-02
9	0. 000D+00	0. 000D+00	2. 641D-02	-2. 577D-02	2. 434D-02	-1. 742D-04
10	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-4. 114D-02	9. 424D-05
11	0. 000D+00	2. 641D-02	0. 000D+00	3. 717D-02	-2. 970D-05	-1. 909D-02
12	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	2. 432D-02	-5. 572D-05
13	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 829D-02	-2. 250D-02
14	0. 000D+00	2. 641D-02	0. 000D+00	3. 460D-02	-2. 764D-05	-1. 910D-02
15	0. 000D+00	0. 000D+00	2. 641D-02	2. 577D-02	2. 430D-02	6. 280D-05
16	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 126D-02	3. 395D-02
17	0. 000D+00	2. 641D-02	0. 000D+00	2. 825D-02	-2. 257D-05	-3. 868D-02
18	0. 000D+00	0. 000D+00	2. 641D-02	-3. 866D-02	4. 905D-02	-2. 901D-04
19	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 696D-02	1. 138D-02
20	0. 000D+00	2. 641D-02	0. 000D+00	3. 340D-02	-2. 668D-05	-3. 866D-02
21	0. 000D+00	0. 000D+00	2. 641D-02	-1. 289D-02	4. 902D-02	-1. 715D-04
22	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 696D-02	-1. 121D-02
23	0. 000D+00	2. 641D-02	0. 000D+00	3. 340D-02	-2. 668D-05	-3. 866D-02
24	0. 000D+00	0. 000D+00	2. 641D-02	1. 289D-02	4. 900D-02	-5. 302D-05
25	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 126D-02	-3. 381D-02
26	0. 000D+00	2. 641D-02	0. 000D+00	2. 825D-02	-2. 257D-05	-3. 868D-02
27	0. 000D+00	0. 000D+00	2. 641D-02	3. 866D-02	4. 898D-02	6. 549D-05
28	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 853D-02	4. 521D-02
29	0. 000D+00	2. 641D-02	0. 000D+00	1. 674D-02	-1. 337D-05	-5. 829D-02
30	0. 000D+00	0. 000D+00	2. 641D-02	-5. 155D-02	7. 375D-02	-4. 059D-04
31	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-2. 708D-02	2. 265D-02
32	0. 000D+00	2. 641D-02	0. 000D+00	2. 447D-02	-1. 955D-05	-5. 825D-02
33	0. 000D+00	0. 000D+00	2. 641D-02	-2. 577D-02	7. 373D-02	-2. 874D-04
34	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-2. 993D-02	6. 857D-05
35	0. 000D+00	2. 641D-02	0. 000D+00	2. 705D-02	-2. 161D-05	-5. 824D-02
36	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	7. 371D-02	-1. 698D-04
37	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-2. 708D-02	-2. 252D-02
38	0. 000D+00	2. 641D-02	0. 000D+00	2. 447D-02	-1. 955D-05	-5. 825D-02
39	0. 000D+00	0. 000D+00	2. 641D-02	2. 577D-02	7. 369D-02	-5. 033D-05
40	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 853D-02	-4. 513D-02
41	0. 000D+00	2. 641D-02	0. 000D+00	1. 674D-02	-1. 337D-05	-5. 829D-02
42	0. 000D+00	0. 000D+00	2. 641D-02	5. 155D-02	7. 366D-02	6. 819D-05
43	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 150D-02	3. 390D-02
44	0. 000D+00	2. 641D-02	0. 000D+00	1. 039D-02	-8. 302D-06	-7. 787D-02
45	0. 000D+00	0. 000D+00	2. 641D-02	-3. 866D-02	9. 843D-02	-4. 032D-04
46	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 721D-02	1. 133D-02
47	0. 000D+00	2. 641D-02	0. 000D+00	1. 555D-02	-1. 242D-05	-7. 784D-02
48	0. 000D+00	0. 000D+00	2. 641D-02	-1. 289D-02	9. 841D-02	-2. 847D-04
49	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 721D-02	-1. 125D-02
50	0. 000D+00	2. 641D-02	0. 000D+00	1. 555D-02	-1. 242D-05	-7. 784D-02

ROW \ COL	1	2	3	4	5	6
51	0. 000D+00	0. 000D+00	2. 641D-02	1. 289D-02	9. 839D-02	-1. 661D-04
52	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 150D-02	-3. 385D-02
53	0. 000D+00	2. 641D-02	0. 000D+00	1. 039D-02	-8. 302D-06	-7. 787D-02
54	0. 000D+00	0. 000D+00	2. 641D-02	3. 866D-02	9. 837D-02	-4. 763D-05
55	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	1. 207D-03	2. 258D-02
56	0. 000D+00	2. 641D-02	0. 000D+00	-1. 091D-03	8. 712D-07	-9. 747D-02
57	0. 000D+00	0. 000D+00	2. 641D-02	-2. 577D-02	1. 231D-01	-4. 005D-04
58	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 635D-03	3. 745D-06
59	0. 000D+00	2. 641D-02	0. 000D+00	1. 477D-03	-1. 180D-06	-9. 746D-02
60	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	1. 231D-01	-2. 820D-04
61	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	1. 207D-03	-2. 259D-02
62	0. 000D+00	2. 641D-02	0. 000D+00	-1. 091D-03	8. 712D-07	-9. 747D-02
63	0. 000D+00	0. 000D+00	2. 641D-02	2. 577D-02	1. 231D-01	-1. 634D-04

*** VRE MATRIX ***

ROW \ COL	1	2	3	4
1	5.706D-03	6.129D-06	-2.651D-05	1.585D-04
2	-2.243D-04	1.038D-06	2.201D-04	1.356D-02
3	9.308D-07	-6.144D-03	1.402D-04	-2.371D-06
4	-1.213D-04	1.014D-07	1.296D-04	9.836D-03
5	3.047D-04	-5.001D-06	2.140D-05	-4.401D-05
6	1.099D-07	-1.635D-04	-7.585D-03	1.907D-04

*** VEEAI MATRIX ***

ROW \ COL	1	2	3	4
1	6.193D-03	1.412D-04	6.645D-03	-7.875D-05
2	-3.030D-05	8.753D-07	1.265D-05	-2.174D-03
3	-1.052D-04	-6.144D-03	2.536D-04	8.604D-03
4	-4.017D-01	-1.231D-02	-5.047D-01	4.619D-03
5	-6.668D-01	-2.563D-02	-8.517D-01	1.408D-02
6	-1.241D-02	1.503D-01	-3.199D-02	-1.795D-01
7	-4.017D-01	-1.230D-02	-5.047D-01	4.616D-03
8	-3.244D-01	-1.645D-02	-4.140D-01	1.101D-02
9	-3.289D-03	1.697D-01	-1.806D-02	-2.057D-01
10	-4.017D-01	-1.230D-02	-5.047D-01	4.613D-03
11	1.844D-02	-7.256D-03	2.428D-02	7.925D-03
12	5.831D-03	1.890D-01	-4.131D-03	-2.320D-01
13	-4.017D-01	-1.230D-02	-5.047D-01	4.610D-03
14	3.613D-01	1.939D-03	4.625D-01	4.841D-03
15	1.495D-02	2.083D-01	9.798D-03	-2.583D-01
16	-4.017D-01	-1.230D-02	-5.047D-01	4.608D-03
17	7.037D-01	1.113D-02	9.002D-01	1.756D-03
18	2.407D-02	2.276D-01	2.373D-02	-2.845D-01
19	-1.174D+00	-3.300D-02	-1.491D+00	1.155D-02
20	-6.674D-01	-2.565D-02	-8.524D-01	1.410D-02
21	-2.090D-01	1.949D+00	-7.469D-01	-2.714D+00
22	-1.174D+00	-3.300D-02	-1.491D+00	1.155D-02
23	-3.244D-01	-1.645D-02	-4.140D-01	1.101D-02
24	-8.988D-02	1.985D+00	-4.257D-01	-2.812D+00
25	-1.174D+00	-3.300D-02	-1.491D+00	1.156D-02
26	1.844D-02	-7.256D-03	2.428D-02	7.926D-03
27	2.925D-02	2.020D+00	-1.045D-01	-2.911D+00
28	-1.174D+00	-3.300D-02	-1.491D+00	1.156D-02
29	3.613D-01	1.940D-03	4.625D-01	4.841D-03
30	1.484D-01	2.055D+00	2.167D-01	-3.010D+00
31	-1.174D+00	-3.300D-02	-1.491D+00	1.156D-02
32	7.043D-01	1.114D-02	9.010D-01	1.754D-03
33	2.675D-01	2.090D+00	5.379D-01	-3.109D+00
34	-1.946D+00	-5.371D-02	-2.478D+00	1.851D-02
35	-6.676D-01	-2.566D-02	-8.527D-01	1.410D-02
36	-5.981D-01	3.472D+00	-1.945D+00	-4.735D+00
37	-1.946D+00	-5.371D-02	-2.478D+00	1.850D-02
38	-3.246D-01	-1.646D-02	-4.142D-01	1.101D-02
39	-2.741D-01	3.533D+00	-1.067D+00	-4.959D+00
40	-1.946D+00	-5.371D-02	-2.478D+00	1.850D-02
41	1.844D-02	-7.256D-03	2.428D-02	7.926D-03
42	4.994D-02	3.593D+00	-1.893D-01	-5.183D+00
43	-1.946D+00	-5.371D-02	-2.478D+00	1.850D-02
44	3.615D-01	1.943D-03	4.627D-01	4.839D-03
45	3.740D-01	3.654D+00	6.883D-01	-5.408D+00
46	-1.946D+00	-5.371D-02	-2.478D+00	1.850D-02
47	7.045D-01	1.114D-02	9.012D-01	1.752D-03
48	6.980D-01	3.715D+00	1.566D+00	-5.632D+00
49	-2.718D+00	-7.443D-02	-3.466D+00	2.546D-02
50	-6.677D-01	-2.566D-02	-8.528D-01	1.411D-02

ROW \ COL	1	2	3	4
51	-7. 983D-01	4. 443D+00	-2. 480D+00	-5. 988D+00
52	-2. 718D+00	-7. 443D-02	-3. 466D+00	2. 546D-02
53	-3. 246D-01	-1. 646D-02	-4. 142D-01	1. 102D-02
54	-3. 668D-01	4. 514D+00	-1. 359D+00	-6. 256D+00
55	-2. 718D+00	-7. 443D-02	-3. 466D+00	2. 546D-02
56	1. 844D-02	-7. 258D-03	2. 428D-02	7. 928D-03
57	6. 474D-02	4. 584D+00	-2. 379D-01	-6. 524D+00
58	-2. 718D+00	-7. 442D-02	-3. 466D+00	2. 546D-02
59	3. 615D-01	1. 944D-03	4. 628D-01	4. 838D-03
60	4. 963D-01	4. 654D+00	8. 832D-01	-6. 792D+00
61	-2. 718D+00	-7. 442D-02	-3. 466D+00	2. 546D-02
62	7. 045D-01	1. 114D-02	9. 013D-01	1. 749D-03
63	9. 278D-01	4. 725D+00	2. 004D+00	-7. 060D+00
64	-3. 490D+00	-9. 514D-02	-4. 453D+00	3. 241D-02
65	-6. 676D-01	-2. 566D-02	-8. 527D-01	1. 411D-02
66	-8. 591D-01	4. 715D+00	-2. 470D+00	-6. 250D+00
67	-3. 490D+00	-9. 514D-02	-4. 453D+00	3. 241D-02
68	-3. 245D-01	-1. 646D-02	-4. 142D-01	1. 102D-02
69	-3. 935D-01	4. 782D+00	-1. 356D+00	-6. 494D+00
70	-3. 490D+00	-9. 514D-02	-4. 453D+00	3. 241D-02
71	1. 844D-02	-7. 259D-03	2. 428D-02	7. 929D-03
72	7. 212D-02	4. 849D+00	-2. 423D-01	-6. 739D+00
73	-3. 490D+00	-9. 514D-02	-4. 453D+00	3. 241D-02
74	3. 614D-01	1. 941D-03	4. 627D-01	4. 839D-03
75	5. 377D-01	4. 917D+00	8. 716D-01	-6. 984D+00
76	-3. 490D+00	-9. 514D-02	-4. 453D+00	3. 241D-02
77	7. 045D-01	1. 114D-02	9. 013D-01	1. 745D-03
78	1. 003D+00	4. 984D+00	1. 986D+00	-7. 228D+00
79	-4. 262D+00	-1. 158D-01	-5. 440D+00	3. 936D-02
80	-6. 674D-01	-2. 566D-02	-8. 524D-01	1. 412D-02
81	-7. 583D-01	4. 293D+00	-1. 836D+00	-5. 611D+00
82	-4. 262D+00	-1. 158D-01	-5. 440D+00	3. 937D-02
83	-3. 245D-01	-1. 646D-02	-4. 141D-01	1. 102D-02
84	-3. 432D-01	4. 342D+00	-1. 020D+00	-5. 756D+00
85	-4. 262D+00	-1. 158D-01	-5. 440D+00	3. 937D-02
86	1. 844D-02	-7. 255D-03	2. 428D-02	7. 923D-03
87	7. 181D-02	4. 392D+00	-2. 049D-01	-5. 900D+00
88	-4. 262D+00	-1. 159D-01	-5. 440D+00	3. 937D-02
89	3. 614D-01	1. 941D-03	4. 627D-01	4. 836D-03
90	4. 868D-01	4. 441D+00	6. 105D-01	-6. 044D+00
91	-4. 262D+00	-1. 159D-01	-5. 440D+00	3. 938D-02
92	7. 043D-01	1. 113D-02	9. 010D-01	1. 753D-03
93	9. 019D-01	4. 490D+00	1. 426D+00	-6. 189D+00
94	-5. 034D+00	-1. 366D-01	-6. 426D+00	4. 638D-02
95	-6. 673D-01	-2. 567D-02	-8. 523D-01	1. 414D-02
96	-6. 428D-01	3. 256D+00	-1. 295D+00	-4. 109D+00
97	-5. 034D+00	-1. 366D-01	-6. 426D+00	4. 635D-02
98	-3. 245D-01	-1. 646D-02	-4. 141D-01	1. 102D-02
99	-2. 892D-01	3. 292D+00	-7. 152D-01	-4. 186D+00
100	-5. 034D+00	-1. 366D-01	-6. 426D+00	4. 633D-02

ROW \ COL	1	2	3	4
101	1. 844D-02	-7. 257D-03	2. 428D-02	7. 926D-03
102	6. 445D-02	3. 328D+00	-1. 353D-01	-4. 263D+00
103	-5. 034D+00	-1. 365D-01	-6. 426D+00	4. 630D-02
104	3. 614D-01	1. 938D-03	4. 626D-01	4. 840D-03
105	4. 181D-01	3. 364D+00	4. 447D-01	-4. 341D+00
106	-5. 034D+00	-1. 365D-01	-6. 426D+00	4. 628D-02
107	7. 042D-01	1. 112D-02	9. 009D-01	1. 775D-03
108	7. 717D-01	3. 401D+00	1. 025D+00	-4. 418D+00

*** VEEA2 MATRIX ***

ROW \ COL	1	2	3	4
1	6.193D-03	-1.450D-04	-6.629D-03	2.549D-04
2	-3.030D-05	8.753D-07	1.265D-05	-2.174D-03
3	1.070D-04	-6.144D-03	2.676D-05	-8.609D-03
4	-4.019D-01	1.241D-02	5.044D-01	-1.506D-02
5	-6.671D-01	2.581D-02	8.514D-01	-1.981D-02
6	1.245D-02	1.504D-01	-2.550D-02	1.811D-01
7	-4.019D-01	1.241D-02	5.044D-01	-1.507D-02
8	-3.245D-01	1.654D-02	4.140D-01	-5.476D-03
9	3.335D-03	1.697D-01	-1.064D-02	2.065D-01
10	-4.019D-01	1.241D-02	5.044D-01	-1.507D-02
11	1.845D-02	7.255D-03	-2.387D-02	8.872D-03
12	-5.783D-03	1.890D-01	4.215D-03	2.319D-01
13	-4.019D-01	1.240D-02	5.044D-01	-1.507D-02
14	3.614D-01	-2.030D-03	-4.617D-01	2.322D-02
15	-1.490D-02	2.084D-01	1.907D-02	2.573D-01
16	-4.019D-01	1.240D-02	5.044D-01	-1.507D-02
17	7.040D-01	-1.131D-02	-8.991D-01	3.754D-02
18	-2.402D-02	2.277D-01	3.393D-02	2.828D-01
19	-1.174D+00	3.331D-02	1.490D+00	-4.737D-02
20	-6.677D-01	2.583D-02	8.521D-01	-1.983D-02
21	2.096D-01	1.950D+00	-6.538D-01	2.770D+00
22	-1.174D+00	3.331D-02	1.490D+00	-4.737D-02
23	-3.245D-01	1.654D-02	4.140D-01	-5.476D-03
24	9.041D-02	1.985D+00	-3.301D-01	2.841D+00
25	-1.174D+00	3.331D-02	1.490D+00	-4.737D-02
26	1.845D-02	7.255D-03	-2.387D-02	8.873D-03
27	-2.876D-02	2.020D+00	-6.318D-03	2.913D+00
28	-1.174D+00	3.331D-02	1.490D+00	-4.737D-02
29	3.614D-01	-2.030D-03	-4.618D-01	2.322D-02
30	-1.479D-01	2.055D+00	3.174D-01	2.985D+00
31	-1.174D+00	3.331D-02	1.490D+00	-4.737D-02
32	7.046D-01	-1.132D-02	-8.999D-01	3.757D-02
33	-2.671D-01	2.090D+00	6.412D-01	3.057D+00
34	-1.946D+00	5.422D-02	2.476D+00	-7.968D-02
35	-6.679D-01	2.583D-02	8.524D-01	-1.984D-02
36	5.992D-01	3.473D+00	-1.780D+00	4.886D+00
37	-1.946D+00	5.422D-02	2.476D+00	-7.968D-02
38	-3.247D-01	1.654D-02	4.142D-01	-5.481D-03
39	2.751D-01	3.534D+00	-8.974D-01	5.037D+00
40	-1.946D+00	5.422D-02	2.476D+00	-7.968D-02
41	1.845D-02	7.255D-03	-2.387D-02	8.872D-03
42	-4.907D-02	3.594D+00	-1.445D-02	5.187D+00
43	-1.946D+00	5.422D-02	2.476D+00	-7.968D-02
44	3.616D-01	-2.033D-03	-4.620D-01	2.323D-02
45	-3.732D-01	3.655D+00	8.685D-01	5.337D+00
46	-1.946D+00	5.422D-02	2.476D+00	-7.968D-02
47	7.047D-01	-1.132D-02	-9.001D-01	3.758D-02
48	-6.974D-01	3.716D+00	1.751D+00	5.488D+00
49	-2.719D+00	7.513D-02	3.463D+00	-1.120D-01
50	-6.679D-01	2.584D-02	8.525D-01	-1.984D-02

ROW \ COL	1	2	3	4
51	7. 997D-01	4. 445D+00	-2. 271D+00	6. 177D+00
52	-2. 719D+00	7. 513D-02	3. 463D+00	-1. 120D-01
53	-3. 247D-01	1. 655D-02	4. 143D-01	-5. 481D-03
54	3. 680D-01	4. 515D+00	-1. 144D+00	6. 353D+00
55	-2. 719D+00	7. 513D-02	3. 463D+00	-1. 120D-01
56	1. 845D-02	7. 257D-03	-2. 387D-02	8. 874D-03
57	-6. 363D-02	4. 585D+00	-1. 666D-02	6. 528D+00
58	-2. 719D+00	7. 513D-02	3. 463D+00	-1. 120D-01
59	3. 616D-01	-2. 034D-03	-4. 620D-01	2. 323D-02
60	-4. 953D-01	4. 656D+00	1. 111D+00	6. 704D+00
61	-2. 719D+00	7. 513D-02	3. 463D+00	-1. 120D-01
62	7. 048D-01	-1. 132D-02	-9. 002D-01	3. 758D-02
63	-9. 270D-01	4. 726D+00	2. 238D+00	6. 879D+00
64	-3. 492D+00	9. 604D-02	4. 449D+00	-1. 443D-01
65	-6. 679D-01	2. 583D-02	8. 524D-01	-1. 983D-02
66	8. 606D-01	4. 716D+00	-2. 251D+00	6. 429D+00
67	-3. 492D+00	9. 604D-02	4. 449D+00	-1. 443D-01
68	-3. 247D-01	1. 655D-02	4. 142D-01	-5. 475D-03
69	3. 948D-01	4. 783D+00	-1. 131D+00	6. 586D+00
70	-3. 492D+00	9. 604D-02	4. 449D+00	-1. 443D-01
71	1. 845D-02	7. 258D-03	-2. 387D-02	8. 875D-03
72	-7. 096D-02	4. 851D+00	-1. 169D-02	6. 743D+00
73	-3. 492D+00	9. 605D-02	4. 449D+00	-1. 443D-01
74	3. 616D-01	-2. 031D-03	-4. 620D-01	2. 323D-02
75	-5. 367D-01	4. 918D+00	1. 108D+00	6. 900D+00
76	-3. 492D+00	9. 604D-02	4. 449D+00	-1. 443D-01
77	7. 048D-01	-1. 132D-02	-9. 001D-01	3. 758D-02
78	-1. 003D+00	4. 985D+00	2. 227D+00	7. 057D+00
79	-4. 264D+00	1. 170D-01	5. 436D+00	-1. 766D-01
80	-6. 677D-01	2. 584D-02	8. 521D-01	-1. 981D-02
81	7. 596D-01	4. 294D+00	-1. 638D+00	5. 726D+00
82	-4. 264D+00	1. 170D-01	5. 435D+00	-1. 766D-01
83	-3. 246D-01	1. 654D-02	4. 142D-01	-5. 475D-03
84	3. 444D-01	4. 344D+00	-8. 189D-01	5. 815D+00
85	-4. 264D+00	1. 170D-01	5. 435D+00	-1. 766D-01
86	1. 845D-02	7. 254D-03	-2. 388D-02	8. 870D-03
87	-7. 075D-02	4. 393D+00	-2. 588D-04	5. 903D+00
88	-4. 264D+00	1. 170D-01	5. 435D+00	-1. 766D-01
89	3. 615D-01	-2. 031D-03	-4. 619D-01	2. 322D-02
90	-4. 859D-01	4. 442D+00	8. 184D-01	5. 992D+00
91	-4. 264D+00	1. 170D-01	5. 435D+00	-1. 766D-01
92	7. 045D-01	-1. 131D-02	-8. 999D-01	3. 757D-02
93	-9. 011D-01	4. 492D+00	1. 637D+00	6. 080D+00
94	-5. 036D+00	1. 379D-01	6. 421D+00	-2. 088D-01
95	-6. 676D-01	2. 585D-02	8. 520D-01	-1. 979D-02
96	6. 439D-01	3. 257D+00	-1. 148D+00	4. 177D+00
97	-5. 036D+00	1. 379D-01	6. 421D+00	-2. 089D-01
98	-3. 246D-01	1. 655D-02	4. 141D-01	-5. 470D-03
99	2. 901D-01	3. 293D+00	-5. 662D-01	4. 221D+00
100	-5. 036D+00	1. 379D-01	6. 421D+00	-2. 089D-01

ROW \ COL	1	2	3	4
101	1. 845D-02	7. 256D-03	-2. 388D-02	8. 873D-03
102	-6. 365D-02	3. 329D+00	1. 543D-02	4. 265D+00
103	-5. 036D+00	1. 378D-01	6. 421D+00	-2. 089D-01
104	3. 615D-01	-2. 028D-03	-4. 619D-01	2. 322D-02
105	-4. 174D-01	3. 365D+00	5. 971D-01	4. 309D+00
106	-5. 036D+00	1. 378D-01	6. 421D+00	-2. 090D-01
107	7. 045D-01	-1. 129D-02	-8. 998D-01	3. 759D-02
108	-7. 712D-01	3. 402D+00	1. 179D+00	4. 353D+00

*** VEER1.MATRIX ***

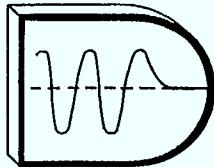
ROW \ COL	1	2	3	4
1	5. 889D-03	3. 128D-06	-1. 367D-05	1. 321D-04
2	-1. 514D-04	-1. 724D-04	-7. 898D-03	7. 864D-03
3	-3. 220D-04	-6. 139D-03	1. 175D-04	4. 428D-05
4	5. 608D-03	7. 729D-06	-3. 336D-05	1. 726D-04
5	-2. 629D-04	-2. 311D-04	-1. 051D-02	1. 698D-02
6	-4. 317D-04	-6. 137D-03	1. 098D-04	6. 012D-05
7	5. 030D-03	4. 503D-04	2. 003D-02	-1. 853D-04
8	-4. 922D-04	-3. 712D-04	-1. 677D-02	3. 574D-02
9	-1. 019D-03	-6. 134D-03	3. 930D-04	2. 643D-02
10	4. 949D-03	1. 563D-05	-7. 963D-05	2. 680D-04
11	-5. 247D-04	-3. 713D-04	-1. 674D-02	3. 838D-02
12	-6. 941D-04	-6. 134D-03	9. 139D-05	9. 811D-05
13	5. 032D-03	-4. 201D-04	-2. 018D-02	6. 976D-04
14	-4. 923D-04	-3. 713D-04	-1. 677D-02	3. 574D-02
15	-3. 691D-04	-6. 133D-03	-2. 102D-04	-2. 623D-02
16	5. 232D-03	6. 670D-04	3. 009D-02	-4. 317D-04
17	-4. 117D-04	-7. 478D-04	-3. 424D-02	2. 964D-02
18	-1. 892D-03	-6. 131D-03	4. 893D-04	3. 969D-02
19	5. 069D-03	2. 325D-04	9. 982D-03	3. 011D-05
20	-4. 765D-04	-7. 480D-04	-3. 418D-02	3. 490D-02
21	-1. 567D-03	-6. 130D-03	1. 917D-04	1. 336D-02
22	5. 070D-03	-2. 027D-04	-1. 012D-02	4. 711D-04
23	-4. 765D-04	-7. 479D-04	-3. 418D-02	3. 490D-02
24	-1. 242D-03	-6. 130D-03	-1. 084D-04	-1. 296D-02
25	5. 235D-03	-6. 384D-04	-3. 021D-02	8. 853D-04
26	-4. 116D-04	-7. 479D-04	-3. 424D-02	2. 964D-02
27	-9. 177D-04	-6. 130D-03	-4. 060D-04	-3. 928D-02
28	5. 599D-03	8. 835D-04	4. 017D-02	-7. 020D-04
29	-2. 660D-04	-1. 124D-03	-5. 177D-02	1. 827D-02
30	-2. 766D-03	-6. 129D-03	5. 855D-04	5. 295D-02
31	5. 353D-03	4. 490D-04	2. 005D-02	-2. 291D-04
32	-3. 634D-04	-1. 124D-03	-5. 168D-02	2. 616D-02
33	-2. 441D-03	-6. 129D-03	2. 891D-04	2. 663D-02
34	5. 272D-03	1. 413D-05	-5. 707D-05	2. 213D-04
35	-3. 958D-04	-1. 124D-03	-5. 165D-02	2. 880D-02
36	-2. 117D-03	-6. 128D-03	-8. 083D-06	3. 043D-04
37	5. 355D-03	-4. 212D-04	-2. 015D-02	6. 478D-04
38	-3. 633D-04	-1. 124D-03	-5. 168D-02	2. 616D-02
39	-1. 792D-03	-6. 128D-03	-3. 053D-04	-2. 602D-02
40	5. 602D-03	-8. 569D-04	-4. 023D-02	1. 049D-03
41	-2. 659D-04	-1. 124D-03	-5. 177D-02	1. 827D-02
42	-1. 467D-03	-6. 128D-03	-6. 017D-04	-5. 234D-02
43	5. 802D-03	6. 655D-04	3. 013D-02	-5. 119D-04
44	-1. 853D-04	-1. 501D-03	-6. 924D-02	1. 216D-02
45	-3. 316D-03	-6. 127D-03	3. 863D-04	3. 989D-02
46	5. 639D-03	2. 308D-04	1. 002D-02	-5. 071D-05
47	-2. 502D-04	-1. 501D-03	-6. 918D-02	1. 743D-02
48	-2. 991D-03	-6. 127D-03	9. 021D-05	1. 357D-02
49	5. 639D-03	-2. 043D-04	-1. 008D-02	3. 869D-04
50	-2. 502D-04	-1. 501D-03	-6. 918D-02	1. 743D-02

ROW \ COL	1	2	3	4
51	-2. 667D-03	-6. 126D-03	-2. 058D-04	-1. 275D-02
52	5. 805D-03	-6. 398D-04	-3. 017D-02	8. 004D-04
53	-1. 853D-04	-1. 501D-03	-6. 924D-02	1. 216D-02
54	-2. 342D-03	-6. 126D-03	-5. 019D-04	-3. 907D-02
55	6. 170D-03	4. 473D-04	2. 011D-02	-3. 458D-04
56	-3. 991D-05	-1. 877D-03	-8. 678D-02	8. 156D-04
57	-3. 866D-03	-6. 126D-03	1. 879D-04	2. 683D-02
58	6. 088D-03	1. 233D-05	-6. 256D-08	1. 030D-04
59	-7. 229D-05	-1. 877D-03	-8. 675D-02	3. 438D-03
60	-3. 542D-03	-6. 125D-03	-1. 076D-04	5. 106D-04
61	6. 171D-03	-4. 230D-04	-2. 010D-02	5. 281D-04
62	-3. 996D-05	-1. 877D-03	-8. 678D-02	8. 156D-04
63	-3. 217D-03	-6. 125D-03	-4. 030D-04	-2. 581D-02

*** VEER2.MATRIX ***

ROW \ COL	1	2	3	4
1	5. 889D-03	3. 128D-06	-1. 367D-05	1. 321D-04
2	-1. 517D-04	1. 743D-04	8. 183D-03	7. 460D-03
3	3. 239D-04	-6. 149D-03	1. 629D-04	-4. 902D-05
4	5. 608D-03	7. 729D-06	-3. 336D-05	1. 726D-04
5	-2. 633D-04	2. 333D-04	1. 103D-02	1. 644D-02
6	4. 335D-04	-6. 151D-03	1. 706D-04	-6. 486D-05
7	5. 031D-03	-4. 159D-04	-2. 018D-02	8. 227D-04
8	-4. 927D-04	3. 738D-04	1. 778D-02	3. 488D-02
9	1. 021D-03	-6. 156D-03	-1. 584D-04	-2. 646D-02
10	4. 949D-03	2. 148D-05	-7. 984D-05	2. 680D-04
11	-5. 252D-04	3. 739D-04	1. 782D-02	3. 751D-02
12	6. 956D-04	-6. 156D-03	1. 890D-04	-1. 027D-04
13	5. 031D-03	4. 545D-04	2. 003D-02	-3. 104D-04
14	-4. 928D-04	3. 739D-04	1. 778D-02	3. 488D-02
15	3. 706D-04	-6. 155D-03	5. 364D-04	2. 626D-02
16	5. 233D-03	-6. 392D-04	-3. 021D-02	1. 080D-03
17	-4. 127D-04	7. 502D-04	3. 508D-02	2. 790D-02
18	1. 890D-03	-6. 168D-03	-2. 825D-04	-3. 974D-02
19	5. 069D-03	-1. 993D-04	-1. 012D-02	5. 341D-04
20	-4. 775D-04	7. 505D-04	3. 516D-02	3. 316D-02
21	1. 565D-03	-6. 167D-03	6. 492D-05	-1. 338D-02
22	5. 069D-03	2. 359D-04	9. 981D-03	-3. 286D-05
23	-4. 775D-04	7. 504D-04	3. 516D-02	3. 316D-02
24	1. 240D-03	-6. 167D-03	4. 124D-04	1. 297D-02
25	5. 234D-03	6. 661D-04	3. 009D-02	-6. 262D-04
26	-4. 126D-04	7. 503D-04	3. 508D-02	2. 790D-02
27	9. 149D-04	-6. 167D-03	7. 598D-04	3. 933D-02
28	5. 600D-03	-8. 678D-04	-4. 023D-02	1. 313D-03
29	-2. 675D-04	1. 126D-03	5. 230D-02	1. 566D-02
30	2. 759D-03	-6. 179D-03	-4. 066D-04	-5. 303D-02
31	5. 354D-03	-4. 252D-04	-2. 015D-02	7. 786D-04
32	-3. 649D-04	1. 127D-03	5. 242D-02	2. 355D-02
33	2. 434D-03	-6. 179D-03	-5. 915D-05	-2. 667D-02
34	5. 272D-03	1. 240D-05	-5. 701D-05	2. 213D-04
35	-3. 974D-04	1. 127D-03	5. 246D-02	2. 618D-02
36	2. 109D-03	-6. 179D-03	2. 883D-04	-3. 069D-04
37	5. 354D-03	4. 450D-04	2. 005D-02	-3. 599D-04
38	-3. 649D-04	1. 127D-03	5. 242D-02	2. 355D-02
39	1. 784D-03	-6. 179D-03	6. 357D-04	2. 605D-02
40	5. 601D-03	8. 727D-04	4. 016D-02	-9. 660D-04
41	-2. 674D-04	1. 126D-03	5. 230D-02	1. 566D-02
42	1. 459D-03	-6. 178D-03	9. 831D-04	5. 241D-02
43	5. 803D-03	-6. 564D-04	-3. 017D-02	9. 995D-04
44	-1. 873D-04	1. 503D-03	6. 960D-02	8. 681D-03
45	3. 303D-03	-6. 191D-03	-1. 832D-04	-3. 995D-02
46	5. 639D-03	-2. 163D-04	-1. 008D-02	4. 531D-04
47	-2. 523D-04	1. 503D-03	6. 968D-02	1. 394D-02
48	2. 978D-03	-6. 191D-03	1. 642D-04	-1. 359D-02
49	5. 639D-03	2. 188D-04	1. 002D-02	-1. 169D-04
50	-2. 523D-04	1. 503D-03	6. 968D-02	1. 394D-02

ROW \ COL	1	2	3	4
51	2. 654D-03	-6. 190D-03	5. 117D-04	1. 277D-02
52	5. 804D-03	6. 489D-04	3. 013D-02	-7. 110D-04
53	-1. 873D-04	1. 503D-03	6. 960D-02	8. 681D-03
54	2. 329D-03	-6. 190D-03	8. 591D-04	3. 913D-02
55	6. 170D-03	-4. 502D-04	-2. 009D-02	6. 618D-04
56	-4. 244D-05	1. 879D-03	8. 682D-02	-3. 537D-03
57	3. 848D-03	-6. 202D-03	4. 015D-05	-2. 687D-02
58	6. 088D-03	-1. 255D-05	8. 375D-07	1. 030D-04
59	-7. 482D-05	1. 879D-03	8. 686D-02	-9. 151D-04
60	3. 523D-03	-6. 202D-03	3. 876D-04	-5. 111D-04
61	6. 171D-03	4. 201D-04	2. 011D-02	-4. 795D-04
62	-4. 249D-05	1. 879D-03	8. 682D-02	-3. 537D-03
63	3. 198D-03	-6. 202D-03	7. 350D-04	2. 585D-02



YNACON

APPENDIX B

MSAT DYNAMICS MODEL

MARK II

(EVALUATION MODEL: $N_e = 11$)

Visualization Matrix Partitions

$$\underline{V} = \begin{bmatrix} \underline{V}_{rr} & \underline{V}_{re} \\ \underline{V}_{era_1} & \underline{V}_{eea_1} \\ \underline{V}_{era_2} & \underline{V}_{eea_2} \\ \underline{V}_{err_1} & \underline{V}_{eer_1} \\ \underline{V}_{err_2} & \underline{V}_{eer_2} \end{bmatrix}$$

*** VRR MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 474D-02	3. 376D-05
2	0. 000D+00	2. 641D-02	0. 000D+00	1. 332D-02	-1. 064D-05	1. 513D-05
3	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	5. 822D-05	-1. 334D-07
4	0. 000D+00	0. 000D+00	0. 000D+00	9. 617D-03	-7. 683D-06	4. 422D-05
5	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	1. 064D-02	-2. 438D-05
6	0. 000D+00	8. 427D-03				

*** VERA1 MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-7. 379D-03
2	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
3	0. 000D+00	0. 000D+00	2. 641D-02	8. 415D-03	5. 150D-05	3. 856D-05
4	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-2. 203D-02
5	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
6	0. 000D+00	0. 000D+00	2. 641D-02	2. 514D-02	1. 527D-02	8. 058D-05
7	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-2. 203D-02
8	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
9	0. 000D+00	0. 000D+00	2. 641D-02	2. 514D-02	7. 653D-03	9. 802D-05
10	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-2. 203D-02
11	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
12	0. 000D+00	0. 000D+00	2. 641D-02	2. 514D-02	3. 814D-05	1. 155D-04
13	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-2. 203D-02
14	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
15	0. 000D+00	0. 000D+00	2. 641D-02	2. 514D-02	-7. 577D-03	1. 329D-04
16	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-2. 203D-02
17	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
18	0. 000D+00	0. 000D+00	2. 641D-02	2. 514D-02	-1. 519D-02	1. 504D-04
19	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-3. 561D-02
20	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
21	0. 000D+00	0. 000D+00	2. 641D-02	4. 063D-02	1. 526D-02	1. 518D-04
22	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-3. 561D-02
23	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
24	0. 000D+00	0. 000D+00	2. 641D-02	4. 063D-02	7. 641D-03	1. 692D-04
25	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-3. 561D-02
26	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
27	0. 000D+00	0. 000D+00	2. 641D-02	4. 063D-02	2. 577D-05	1. 667D-04
28	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-3. 561D-02
29	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
30	0. 000D+00	0. 000D+00	2. 641D-02	4. 063D-02	-7. 589D-03	2. 041D-04
31	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-3. 561D-02
32	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
33	0. 000D+00	0. 000D+00	2. 641D-02	4. 063D-02	-1. 520D-02	2. 216D-04
34	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-4. 918D-02
35	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
36	0. 000D+00	0. 000D+00	2. 641D-02	5. 612D-02	1. 524D-02	2. 230D-04
37	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-4. 918D-02
38	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
39	0. 000D+00	0. 000D+00	2. 641D-02	5. 612D-02	7. 628D-03	2. 405D-04
40	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-4. 918D-02
41	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
42	0. 000D+00	0. 000D+00	2. 641D-02	5. 612D-02	1. 339D-05	2. 579D-04
43	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-4. 918D-02
44	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
45	0. 000D+00	0. 000D+00	2. 641D-02	5. 612D-02	-7. 601D-03	2. 754D-04
46	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-4. 918D-02
47	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
48	0. 000D+00	0. 000D+00	2. 641D-02	5. 612D-02	-1. 522D-02	2. 928D-04
49	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-6. 276D-02
50	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02

ROW \ COL	1	2	3	4	5	6
51	0. 000D+00	0. 000D+00	2. 641D-02	7. 161D-02	1. 523D-02	2. 943D-04
52	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-6. 276D-02
53	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
54	0. 000D+00	0. 000D+00	2. 641D-02	7. 161D-02	7. 616D-03	3. 117D-04
55	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-6. 276D-02
56	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
57	0. 000D+00	0. 000D+00	2. 641D-02	7. 161D-02	1. 017D-06	3. 291D-04
58	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-6. 276D-02
59	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
60	0. 000D+00	0. 000D+00	2. 641D-02	7. 161D-02	-7. 614D-03	3. 466D-04
61	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-6. 276D-02
62	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
63	0. 000D+00	0. 000D+00	2. 641D-02	7. 161D-02	-1. 523D-02	3. 640D-04
64	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-7. 633D-02
65	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
66	0. 000D+00	0. 000D+00	2. 641D-02	8. 710D-02	1. 522D-02	3. 655D-04
67	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-7. 633D-02
68	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
69	0. 000D+00	0. 000D+00	2. 641D-02	8. 710D-02	7. 604D-03	3. 829D-04
70	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-7. 633D-02
71	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
72	0. 000D+00	0. 000D+00	2. 641D-02	8. 710D-02	-1. 136D-05	4. 004D-04
73	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-7. 633D-02
74	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
75	0. 000D+00	0. 000D+00	2. 641D-02	8. 710D-02	-7. 626D-03	4. 178D-04
76	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-7. 633D-02
77	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
78	0. 000D+00	0. 000D+00	2. 641D-02	8. 710D-02	-1. 524D-02	4. 353D-04
79	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-8. 990D-02
80	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
81	0. 000D+00	0. 000D+00	2. 641D-02	1. 026D-01	1. 521D-02	4. 367D-04
82	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-8. 990D-02
83	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
84	0. 000D+00	0. 000D+00	2. 641D-02	1. 026D-01	7. 591D-03	4. 542D-04
85	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-8. 990D-02
86	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
87	0. 000D+00	0. 000D+00	2. 641D-02	1. 026D-01	-2. 373D-05	4. 716D-04
88	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-8. 990D-02
89	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
90	0. 000D+00	0. 000D+00	2. 641D-02	1. 026D-01	-7. 639D-03	4. 890D-04
91	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-8. 990D-02
92	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
93	0. 000D+00	0. 000D+00	2. 641D-02	1. 026D-01	-1. 525D-02	5. 065D-04
94	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-1. 035D-01
95	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
96	0. 000D+00	0. 000D+00	2. 641D-02	1. 181D-01	1. 519D-02	5. 079D-04
97	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-1. 035D-01
98	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
99	0. 000D+00	0. 000D+00	2. 641D-02	1. 181D-01	7. 579D-03	5. 254D-04
100	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-1. 035D-01

ROW \ COL	1	2	3	4	5	6
101	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
102	0. 000D+00	0. 000D+00	2. 641D-02	1. 181D-01	-3. 611D-05	5. 428D-04
103	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-1. 035D-01
104	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
105	0. 000D+00	0. 000D+00	2. 641D-02	1. 181D-01	-7. 651D-03	5. 603D-04
106	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	-1. 035D-01
107	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
108	0. 000D+00	0. 000D+00	2. 641D-02	1. 181D-01	-1. 527D-02	5. 777D-04

*** VERA2 MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	7. 369D-03
2	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
3	0. 000D+00	0. 000D+00	2. 641D-02	-8. 415D-03	6. 495D-05	-3. 883D-05
4	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	2. 202D-02
5	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
6	0. 000D+00	0. 000D+00	2. 641D-02	-2. 514D-02	-1. 515D-02	-8. 084D-05
7	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	2. 202D-02
8	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
9	0. 000D+00	0. 000D+00	2. 641D-02	-2. 514D-02	-7. 537D-03	-9. 829D-05
10	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	2. 202D-02
11	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
12	0. 000D+00	0. 000D+00	2. 641D-02	-2. 514D-02	7. 831D-05	-1. 157D-04
13	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	2. 202D-02
14	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
15	0. 000D+00	0. 000D+00	2. 641D-02	-2. 514D-02	7. 693D-03	-1. 332D-04
16	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	2. 202D-02
17	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
18	0. 000D+00	0. 000D+00	2. 641D-02	-2. 514D-02	1. 531D-02	-1. 506D-04
19	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	3. 560D-02
20	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
21	0. 000D+00	0. 000D+00	2. 641D-02	-4. 063D-02	-1. 514D-02	-1. 521D-04
22	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	3. 560D-02
23	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
24	0. 000D+00	0. 000D+00	2. 641D-02	-4. 063D-02	-7. 524D-03	-1. 695D-04
25	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	3. 560D-02
26	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
27	0. 000D+00	0. 000D+00	2. 641D-02	-4. 063D-02	9. 068D-05	-1. 870D-04
28	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	3. 560D-02
29	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
30	0. 000D+00	0. 000D+00	2. 641D-02	-4. 063D-02	7. 706D-03	-2. 044D-04
31	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	3. 560D-02
32	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
33	0. 000D+00	0. 000D+00	2. 641D-02	-4. 063D-02	1. 532D-02	-2. 218D-04
34	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	4. 917D-02
35	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
36	0. 000D+00	0. 000D+00	2. 641D-02	-5. 612D-02	-1. 513D-02	-2. 233D-04
37	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	4. 917D-02
38	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
39	0. 000D+00	0. 000D+00	2. 641D-02	-5. 612D-02	-7. 512D-03	-2. 407D-04
40	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	4. 917D-02
41	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
42	0. 000D+00	0. 000D+00	2. 641D-02	-5. 612D-02	1. 031D-04	-2. 582D-04
43	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	4. 917D-02
44	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
45	0. 000D+00	0. 000D+00	2. 641D-02	-5. 612D-02	7. 718D-03	-2. 756D-04
46	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	4. 917D-02
47	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
48	0. 000D+00	0. 000D+00	2. 641D-02	-5. 612D-02	1. 533D-02	-2. 931D-04
49	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	6. 274D-02
50	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02

ROW \ COL	1	2	3	4	5	6
51	0. 000D+00	0. 000D+00	2. 641D-02	-7. 161D-02	-1. 511D-02	-2. 945D-04
52	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	6. 274D-02
53	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
54	0. 000D+00	0. 000D+00	2. 641D-02	-7. 161D-02	-7. 499D-03	-3. 120D-04
55	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	6. 274D-02
56	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
57	0. 000D+00	0. 000D+00	2. 641D-02	-7. 161D-02	1. 154D-04	-3. 294D-04
58	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	6. 274D-02
59	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
60	0. 000D+00	0. 000D+00	2. 641D-02	-7. 161D-02	7. 730D-03	-3. 469D-04
61	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	6. 274D-02
62	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
63	0. 000D+00	0. 000D+00	2. 641D-02	-7. 161D-02	1. 535D-02	-3. 643D-04
64	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	7. 632D-02
65	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
66	0. 000D+00	0. 000D+00	2. 641D-02	-8. 710D-02	-1. 510D-02	-3. 658D-04
67	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	7. 632D-02
68	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
69	0. 000D+00	0. 000D+00	2. 641D-02	-8. 710D-02	-7. 487D-03	-3. 832D-04
70	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	7. 632D-02
71	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
72	0. 000D+00	0. 000D+00	2. 641D-02	-8. 710D-02	1. 278D-04	-4. 006D-04
73	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	7. 632D-02
74	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
75	0. 000D+00	0. 000D+00	2. 641D-02	-8. 710D-02	7. 743D-03	-4. 181D-04
76	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	7. 632D-02
77	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
78	0. 000D+00	0. 000D+00	2. 641D-02	-8. 710D-02	1. 536D-02	-4. 355D-04
79	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	8. 989D-02
80	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
81	0. 000D+00	0. 000D+00	2. 641D-02	-1. 026D-01	-1. 509D-02	-4. 370D-04
82	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	8. 989D-02
83	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
84	0. 000D+00	0. 000D+00	2. 641D-02	-1. 026D-01	-7. 475D-03	-4. 544D-04
85	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	8. 989D-02
86	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
87	0. 000D+00	0. 000D+00	2. 641D-02	-1. 026D-01	1. 402D-04	-4. 719D-04
88	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	8. 989D-02
89	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
90	0. 000D+00	0. 000D+00	2. 641D-02	-1. 026D-01	7. 755D-03	-4. 893D-04
91	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	8. 989D-02
92	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
93	0. 000D+00	0. 000D+00	2. 641D-02	-1. 026D-01	1. 537D-02	-5. 068D-04
94	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	1. 035D-01
95	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	1. 200D-02
96	0. 000D+00	0. 000D+00	2. 641D-02	-1. 181D-01	-1. 508D-02	-5. 082D-04
97	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	1. 035D-01
98	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	5. 974D-03
99	0. 000D+00	0. 000D+00	2. 641D-02	-1. 181D-01	-7. 462D-03	-5. 256D-04
100	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	1. 035D-01

ROW \ COL	1	2	3	4	5	6
101	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-5. 563D-05
102	0. 000D+00	0. 000D+00	2. 641D-02	-1. 181D-01	1. 526D-04	-5. 431D-04
103	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	1. 035D-01
104	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-6. 085D-03
105	0. 000D+00	0. 000D+00	2. 641D-02	-1. 181D-01	7. 767D-03	-5. 605D-04
106	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	2. 292D-03	1. 035D-01
107	0. 000D+00	2. 641D-02	0. 000D+00	-2. 071D-03	1. 655D-06	-1. 212D-02
108	0. 000D+00	0. 000D+00	2. 641D-02	-1. 181D-01	1. 538D-02	-5. 780D-04

*** VERR1 MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-8.350D-03	1.913D-05
2	0.000D+00	2.641D-02	0.000D+00	7.546D-03	-6.028D-06	8.922D-03
3	0.000D+00	0.000D+00	2.641D-02	0.000D+00	-1.122D-02	2.571D-05
4	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-1.814D-02	4.156D-05
5	0.000D+00	2.641D-02	0.000D+00	1.639D-02	-1.310D-05	1.200D-02
6	0.000D+00	0.000D+00	2.641D-02	0.000D+00	-1.505D-02	3.449D-05
7	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-3.829D-02	-2.250D-02
8	0.000D+00	2.641D-02	0.000D+00	3.460D-02	-2.764D-05	1.933D-02
9	0.000D+00	0.000D+00	2.641D-02	2.577D-02	-2.423D-02	1.740D-04
10	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-4.114D-02	9.424D-05
11	0.000D+00	2.641D-02	0.000D+00	3.717D-02	-2.970D-05	1.934D-02
12	0.000D+00	0.000D+00	2.641D-02	0.000D+00	-2.421D-02	5.545D-05
13	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-3.829D-02	2.267D-02
14	0.000D+00	2.641D-02	0.000D+00	3.460D-02	-2.764D-05	1.933D-02
15	0.000D+00	0.000D+00	2.641D-02	-2.577D-02	-2.419D-02	-6.306D-05
16	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-3.126D-02	-3.381D-02
17	0.000D+00	2.641D-02	0.000D+00	2.825D-02	-2.257D-05	3.885D-02
18	0.000D+00	0.000D+00	2.641D-02	3.866D-02	-4.893D-02	2.898D-04
19	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-3.696D-02	-1.121D-02
20	0.000D+00	2.641D-02	0.000D+00	3.340D-02	-2.668D-05	3.887D-02
21	0.000D+00	0.000D+00	2.641D-02	1.289D-02	-4.891D-02	1.713D-04
22	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-3.696D-02	1.138D-02
23	0.000D+00	2.641D-02	0.000D+00	3.340D-02	-2.668D-05	3.887D-02
24	0.000D+00	0.000D+00	2.641D-02	-1.289D-02	-4.889D-02	5.276D-05
25	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-3.126D-02	3.395D-02
26	0.000D+00	2.641D-02	0.000D+00	2.825D-02	-2.257D-05	3.885D-02
27	0.000D+00	0.000D+00	2.641D-02	-3.866D-02	-4.887D-02	-6.576D-05
28	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-1.853D-02	-4.513D-02
29	0.000D+00	2.641D-02	0.000D+00	1.674D-02	-1.337D-05	5.835D-02
30	0.000D+00	0.000D+00	2.641D-02	5.155D-02	-7.363D-02	4.056D-04
31	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-2.708D-02	-2.252D-02
32	0.000D+00	2.641D-02	0.000D+00	2.447D-02	-1.955D-05	5.838D-02
33	0.000D+00	0.000D+00	2.641D-02	2.577D-02	-7.361D-02	2.871D-04
34	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-2.993D-02	6.857D-05
35	0.000D+00	2.641D-02	0.000D+00	2.705D-02	-2.161D-05	5.840D-02
36	0.000D+00	0.000D+00	2.641D-02	0.000D+00	-7.359D-02	1.686D-04
37	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-2.708D-02	2.265D-02
38	0.000D+00	2.641D-02	0.000D+00	2.447D-02	-1.955D-05	5.838D-02
39	0.000D+00	0.000D+00	2.641D-02	-2.577D-02	-7.357D-02	5.006D-05
40	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-1.853D-02	4.521D-02
41	0.000D+00	2.641D-02	0.000D+00	1.674D-02	-1.337D-05	5.835D-02
42	0.000D+00	0.000D+00	2.641D-02	-5.155D-02	-7.355D-02	-6.846D-05
43	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-1.150D-02	3.385D-02
44	0.000D+00	2.641D-02	0.000D+00	1.039D-02	-8.302D-06	7.787D-02
45	0.000D+00	0.000D+00	2.641D-02	3.866D-02	-9.831D-02	4.029D-04
46	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-1.721D-02	-1.125D-02
47	0.000D+00	2.641D-02	0.000D+00	1.555D-02	-1.242D-05	7.789D-02
48	0.000D+00	0.000D+00	2.641D-02	1.289D-02	-9.829D-02	2.844D-04
49	2.641D-02	0.000D+00	0.000D+00	0.000D+00	-1.721D-02	1.133D-02
50	0.000D+00	2.641D-02	0.000D+00	1.555D-02	-1.242D-05	7.789D-02

ROW \ COL	1	2	3	4	5	6
51	0. 000D+00	0. 000D+00	2. 641D-02	-1. 289D-02	-9. 827D-02	1. 659D-04
52	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 150D-02	3. 390D-02
53	0. 000D+00	2. 641D-02	0. 000D+00	1. 039D-02	-8. 302D-06	7. 787D-02
54	0. 000D+00	0. 000D+00	2. 641D-02	-3. 866D-02	-9. 825D-02	4. 736D-05
55	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	1. 207D-03	-2. 259D-02
56	0. 000D+00	2. 641D-02	0. 000D+00	-1. 091D-03	8. 712D-07	9. 737D-02
57	0. 000D+00	0. 000D+00	2. 641D-02	2. 577D-02	-1. 230D-01	4. 002D-04
58	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 635D-03	3. 745D-06
59	0. 000D+00	2. 641D-02	0. 000D+00	1. 477D-03	-1. 180D-06	9. 738D-02
60	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	-1. 230D-01	2. 817D-04
61	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	1. 207D-03	2. 258D-02
62	0. 000D+00	2. 641D-02	0. 000D+00	-1. 091D-03	8. 712D-07	9. 737D-02
63	0. 000D+00	0. 000D+00	2. 641D-02	-2. 577D-02	-1. 230D-01	1. 632D-04

*** VERR2 MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-8. 350D-03	1. 913D-05
2	0. 000D+00	2. 641D-02	0. 000D+00	7. 546D-03	-6. 028D-06	-8. 944D-03
3	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	1. 134D-02	-2. 598D-05
4	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 814D-02	4. 156D-05
5	0. 000D+00	2. 641D-02	0. 000D+00	1. 639D-02	-1. 310D-05	-1. 194D-02
6	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	1. 517D-02	-3. 475D-05
7	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 829D-02	2. 267D-02
8	0. 000D+00	2. 641D-02	0. 000D+00	3. 460D-02	-2. 764D-05	-1. 910D-02
9	0. 000D+00	0. 000D+00	2. 641D-02	-2. 577D-02	2. 434D-02	-1. 742D-04
10	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-4. 114D-02	9. 424D-05
11	0. 000D+00	2. 641D-02	0. 000D+00	3. 717D-02	-2. 970D-05	-1. 909D-02
12	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	2. 432D-02	-5. 572D-05
13	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 829D-02	-2. 250D-02
14	0. 000D+00	2. 641D-02	0. 000D+00	3. 460D-02	-2. 764D-05	-1. 910D-02
15	0. 000D+00	0. 000D+00	2. 641D-02	2. 577D-02	2. 430D-02	6. 280D-05
16	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 126D-02	3. 395D-02
17	0. 000D+00	2. 641D-02	0. 000D+00	2. 825D-02	-2. 257D-05	-3. 868D-02
18	0. 000D+00	0. 000D+00	2. 641D-02	-3. 866D-02	4. 905D-02	-2. 901D-04
19	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 696D-02	1. 138D-02
20	0. 000D+00	2. 641D-02	0. 000D+00	3. 340D-02	-2. 668D-05	-3. 866D-02
21	0. 000D+00	0. 000D+00	2. 641D-02	-1. 289D-02	4. 902D-02	-1. 715D-04
22	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 696D-02	-1. 121D-02
23	0. 000D+00	2. 641D-02	0. 000D+00	3. 340D-02	-2. 668D-05	-3. 866D-02
24	0. 000D+00	0. 000D+00	2. 641D-02	1. 289D-02	4. 900D-02	-5. 302D-05
25	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-3. 126D-02	-3. 381D-02
26	0. 000D+00	2. 641D-02	0. 000D+00	2. 825D-02	-2. 257D-05	-3. 868D-02
27	0. 000D+00	0. 000D+00	2. 641D-02	3. 866D-02	4. 898D-02	6. 549D-05
28	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 853D-02	4. 521D-02
29	0. 000D+00	2. 641D-02	0. 000D+00	1. 674D-02	-1. 337D-05	-5. 829D-02
30	0. 000D+00	0. 000D+00	2. 641D-02	-5. 155D-02	7. 375D-02	-4. 059D-04
31	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-2. 708D-02	2. 265D-02
32	0. 000D+00	2. 641D-02	0. 000D+00	2. 447D-02	-1. 955D-05	-5. 825D-02
33	0. 000D+00	0. 000D+00	2. 641D-02	-2. 577D-02	7. 373D-02	-2. 874D-04
34	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-2. 993D-02	6. 857D-05
35	0. 000D+00	2. 641D-02	0. 000D+00	2. 705D-02	-2. 161D-05	-5. 824D-02
36	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	7. 371D-02	-1. 688D-04
37	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-2. 708D-02	-2. 252D-02
38	0. 000D+00	2. 641D-02	0. 000D+00	2. 447D-02	-1. 955D-05	-5. 825D-02
39	0. 000D+00	0. 000D+00	2. 641D-02	2. 577D-02	7. 369D-02	-5. 033D-05
40	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 853D-02	-4. 513D-02
41	0. 000D+00	2. 641D-02	0. 000D+00	1. 674D-02	-1. 337D-05	-5. 829D-02
42	0. 000D+00	0. 000D+00	2. 641D-02	5. 155D-02	7. 366D-02	6. 819D-05
43	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 150D-02	3. 390D-02
44	0. 000D+00	2. 641D-02	0. 000D+00	1. 039D-02	-8. 302D-06	-7. 787D-02
45	0. 000D+00	0. 000D+00	2. 641D-02	-3. 866D-02	9. 843D-02	-4. 032D-04
46	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 721D-02	1. 133D-02
47	0. 000D+00	2. 641D-02	0. 000D+00	1. 555D-02	-1. 242D-05	-7. 784D-02
48	0. 000D+00	0. 000D+00	2. 641D-02	-1. 289D-02	9. 841D-02	-2. 847D-04
49	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 721D-02	-1. 125D-02
50	0. 000D+00	2. 641D-02	0. 000D+00	1. 555D-02	-1. 242D-05	-7. 784D-02

ROW \ COL	1	2	3	4	5	6
51	0. 000D+00	0. 000D+00	2. 641D-02	1. 289D-02	9. 839D-02	-1. 661D-04
52	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 150D-02	-3. 385D-02
53	0. 000D+00	2. 641D-02	0. 000D+00	1. 039D-02	-8. 302D-06	-7. 787D-02
54	0. 000D+00	0. 000D+00	2. 641D-02	3. 866D-02	9. 837D-02	-4. 763D-05
55	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	1. 207D-03	2. 258D-02
56	0. 000D+00	2. 641D-02	0. 000D+00	-1. 091D-03	8. 712D-07	-9. 747D-02
57	0. 000D+00	0. 000D+00	2. 641D-02	-2. 577D-02	1. 231D-01	-4. 005D-04
58	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	-1. 635D-03	3. 745D-06
59	0. 000D+00	2. 641D-02	0. 000D+00	1. 477D-03	-1. 180D-06	-9. 746D-02
60	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	1. 231D-01	-2. 820D-04
61	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	1. 207D-03	-2. 259D-02
62	0. 000D+00	2. 641D-02	0. 000D+00	-1. 091D-03	8. 712D-07	-9. 747D-02
63	0. 000D+00	0. 000D+00	2. 641D-02	2. 577D-02	1. 231D-01	-1. 634D-04

*** VRE MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	5.706D-03	6.129D-06	-2.651D-05	1.585D-04	1.608D-03	6.339D-06
2	-2.243D-04	1.038D-06	2.201D-04	1.356D-02	-6.239D-04	8.327D-05
3	9.308D-07	-6.144D-03	1.402D-04	-2.371D-06	-3.851D-06	5.599D-05
4	-1.213D-04	1.014D-07	1.296D-04	9.836D-03	-4.455D-04	6.833D-05
5	3.047D-04	-5.001D-06	2.140D-05	-4.401D-05	-6.600D-04	-5.079D-06
6	1.099D-07	-1.635D-04	-7.585D-03	1.907D-04	8.768D-07	2.018D-03
ROW \ COL	7	8	9	10	11	
1	-8.779D-07	-2.473D-05	-6.005D-04	2.034D-06	1.605D-06	
2	1.232D-07	-8.037D-03	4.493D-05	5.230D-06	-4.396D-08	
3	6.614D-04	8.384D-08	7.828D-07	3.827D-08	-1.509D-03	
4	1.896D-09	-5.876D-03	2.339D-05	5.414D-06	-1.458D-08	
5	6.391D-07	9.439D-06	1.372D-04	-1.191D-06	-1.152D-06	
6	-2.257D-05	-4.461D-05	1.121D-07	3.966D-04	4.728D-06	

*** VEEA1. MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	6.193D-03	1.412D-04	6.645D-03	-7.875D-05	5.513D-04	-1.767D-03
2	-3.030D-05	8.753D-07	1.265D-05	-2.174D-03	8.889D-05	-2.607D-05
3	-1.052D-04	-6.144D-03	2.536D-04	8.604D-03	-3.937D-04	1.158D-04
4	-4.017D-01	-1.231D-02	-5.047D-01	4.619D-03	-6.638D-02	1.588D-01
5	-6.668D-01	-2.563D-02	-8.517D-01	1.408D-02	-6.670D-02	2.226D-01
6	-1.241D-02	1.503D-01	-3.199D-02	-1.795D-01	5.347D-02	-4.492D-02
7	-4.017D-01	-1.230D-02	-5.047D-01	4.616D-03	-6.639D-02	1.588D-01
8	-3.244D-01	-1.645D-02	-4.140D-01	1.101D-02	-3.193D-02	1.076D-01
9	-3.289D-03	1.697D-01	-1.806D-02	-2.057D-01	2.959D-02	-2.195D-02
10	-4.017D-01	-1.230D-02	-5.047D-01	4.613D-03	-6.639D-02	1.588D-01
11	1.844D-02	-7.256D-03	2.428D-02	7.925D-03	2.806D-03	-7.509D-03
12	5.831D-03	1.890D-01	-4.131D-03	-2.320D-01	5.723D-03	1.012D-03
13	-4.017D-01	-1.230D-02	-5.047D-01	4.610D-03	-6.639D-02	1.588D-01
14	3.613D-01	1.939D-03	4.625D-01	4.841D-03	3.755D-02	-1.226D-01
15	1.495D-02	2.083D-01	9.798D-03	-2.583D-01	-1.815D-02	2.398D-02
16	-4.017D-01	-1.230D-02	-5.047D-01	4.608D-03	-6.638D-02	1.588D-01
17	7.037D-01	1.113D-02	9.002D-01	1.756D-03	7.231D-02	-2.376D-01
18	2.407D-02	2.276D-01	2.373D-02	-2.845D-01	-4.202D-02	4.694D-02
19	-1.174D+00	-3.300D-02	-1.491D+00	1.155D-02	-1.446D-01	4.180D-01
20	-6.674D-01	-2.565D-02	-8.524D-01	1.410D-02	-6.666D-02	2.227D-01
21	-2.090D-01	1.949D+00	-7.469D-01	-2.714D+00	3.016D+00	-2.859D+00
22	-1.174D+00	-3.300D-02	-1.491D+00	1.155D-02	-1.446D-01	4.180D-01
23	-3.244D-01	-1.645D-02	-4.140D-01	1.101D-02	-3.193D-02	1.076D-01
24	-8.988D-02	1.985D+00	-4.257D-01	-2.812D+00	1.581D+00	-1.452D+00
25	-1.174D+00	-3.300D-02	-1.491D+00	1.156D-02	-1.446D-01	4.180D-01
26	1.844D-02	-7.256D-03	2.428D-02	7.926D-03	2.806D-03	-7.509D-03
27	2.925D-02	2.020D+00	-1.045D-01	-2.911D+00	1.464D-01	-4.557D-02
28	-1.174D+00	-3.300D-02	-1.491D+00	1.156D-02	-1.446D-01	4.180D-01
29	3.613D-01	1.940D-03	4.625D-01	4.841D-03	3.754D-02	-1.226D-01
30	1.484D-01	2.055D+00	2.167D-01	-3.010D+00	-1.288D+00	1.361D+00
31	-1.174D+00	-3.300D-02	-1.491D+00	1.156D-02	-1.446D-01	4.180D-01
32	7.043D-01	1.114D-02	9.010D-01	1.754D-03	7.228D-02	-2.377D-01
33	2.675D-01	2.090D+00	5.379D-01	-3.109D+00	-2.723D+00	2.768D+00
34	-1.946D+00	-5.371D-02	-2.478D+00	1.851D-02	-2.228D-01	6.771D-01
35	-6.676D-01	-2.566D-02	-8.527D-01	1.410D-02	-6.663D-02	2.227D-01
36	-5.981D-01	3.472D+00	-1.945D+00	-4.735D+00	9.102D+00	-7.765D+00
37	-1.946D+00	-5.371D-02	-2.478D+00	1.850D-02	-2.228D-01	6.771D-01
38	-3.246D-01	-1.646D-02	-4.142D-01	1.101D-02	-3.191D-02	1.076D-01
39	-2.741D-01	3.533D+00	-1.067D+00	-4.959D+00	4.183D+00	-3.924D+00
40	-1.946D+00	-5.371D-02	-2.478D+00	1.850D-02	-2.228D-01	6.771D-01
41	1.844D-02	-7.256D-03	2.428D-02	7.926D-03	2.806D-03	-7.509D-03
42	4.994D-02	3.593D+00	-1.893D-01	-5.183D+00	2.639D-01	-8.404D-02
43	-1.946D+00	-5.371D-02	-2.478D+00	1.850D-02	-2.228D-01	6.771D-01
44	3.615D-01	1.943D-03	4.627D-01	4.839D-03	3.752D-02	-1.226D-01
45	3.740D-01	3.654D+00	6.883D-01	-5.408D+00	-3.655D+00	3.756D+00
46	-1.946D+00	-5.371D-02	-2.478D+00	1.850D-02	-2.228D-01	6.771D-01
47	7.045D-01	1.114D-02	9.012D-01	1.752D-03	7.224D-02	-2.378D-01
48	6.980D-01	3.715D+00	1.566D+00	-5.632D+00	-7.574D+00	7.597D+00
49	-2.718D+00	-7.443D-02	-3.466D+00	2.546D-02	-3.009D-01	9.363D-01
50	-6.677D-01	-2.566D-02	-8.528D-01	1.411D-02	-6.658D-02	2.227D-01

ROW \ COL	1	2	3	4	5	6
51	-7. 983D-01	4. 443D+00	-2. 480D+00	-5. 988D+00	9. 888D+00	-9. 451D+00
52	-2. 718D+00	-7. 443D-02	-3. 466D+00	2. 546D-02	-3. 009D-01	9. 363D-01
53	-3. 246D-01	-1. 646D-02	-4. 142D-01	1. 102D-02	-3. 189D-02	1. 076D-01
54	-3. 668D-01	4. 514D+00	-1. 359D+00	-6. 256D+00	5. 108D+00	-4. 777D+00
55	-2. 718D+00	-7. 443D-02	-3. 466D+00	2. 546D-02	-3. 009D-01	9. 363D-01
56	1. 844D-02	-7. 258D-03	2. 428D-02	7. 928D-03	2. 806D-03	-7. 509D-03
57	6. 474D-02	4. 584D+00	-2. 379D-01	-6. 524D+00	3. 278D-01	-1. 032D-01
58	-2. 718D+00	-7. 442D-02	-3. 466D+00	2. 546D-02	-3. 009D-01	9. 363D-01
59	3. 615D-01	1. 944D-03	4. 628D-01	4. 838D-03	3. 750D-02	-1. 226D-01
60	4. 963D-01	4. 654D+00	8. 832D-01	-6. 792D+00	-4. 452D+00	4. 571D+00
61	-2. 718D+00	-7. 442D-02	-3. 466D+00	2. 546D-02	-3. 009D-01	9. 363D-01
62	7. 045D-01	1. 114D-02	9. 013D-01	1. 749D-03	7. 219D-02	-2. 377D-01
63	9. 278D-01	4. 725D+00	2. 004D+00	-7. 060D+00	-9. 232D+00	9. 245D+00
64	-3. 490D+00	-9. 514D-02	-4. 453D+00	3. 241D-02	-3. 790D-01	1. 195D+00
65	-6. 676D-01	-2. 566D-02	-8. 527D-01	1. 411D-02	-6. 652D-02	2. 226D-01
66	-8. 591D-01	4. 715D+00	-2. 470D+00	-6. 250D+00	8. 930D+00	-8. 471D+00
67	-3. 490D+00	-9. 514D-02	-4. 453D+00	3. 241D-02	-3. 790D-01	1. 195D+00
68	-3. 245D-01	-1. 646D-02	-4. 142D-01	1. 102D-02	-3. 186D-02	1. 076D-01
69	-3. 935D-01	4. 782D+00	-1. 356D+00	-6. 494D+00	4. 629D+00	-4. 285D+00
70	-3. 490D+00	-9. 514D-02	-4. 453D+00	3. 241D-02	-3. 790D-01	1. 195D+00
71	1. 844D-02	-7. 259D-03	2. 428D-02	7. 929D-03	2. 806D-03	-7. 509D-03
72	7. 212D-02	4. 849D+00	-2. 423D-01	-6. 739D+00	3. 279D-01	-9. 954D-02
73	-3. 490D+00	-9. 514D-02	-4. 453D+00	3. 241D-02	-3. 790D-01	1. 195D+00
74	3. 614D-01	1. 941D-03	4. 627D-01	4. 839D-03	3. 747D-02	-1. 226D-01
75	5. 377D-01	4. 917D+00	8. 716D-01	-6. 984D+00	-3. 973D+00	4. 086D+00
76	-3. 490D+00	-9. 514D-02	-4. 453D+00	3. 241D-02	-3. 790D-01	1. 195D+00
77	7. 045D-01	1. 114D-02	9. 013D-01	1. 745D-03	7. 214D-02	-2. 377D-01
78	1. 003D+00	4. 984D+00	1. 986D+00	-7. 228D+00	-8. 275D+00	8. 272D+00
79	-4. 262D+00	-1. 158D-01	-5. 440D+00	3. 936D-02	-4. 570D-01	1. 454D+00
80	-6. 674D-01	-2. 566D-02	-8. 524D-01	1. 412D-02	-6. 647D-02	2. 225D-01
81	-7. 583D-01	4. 293D+00	-1. 836D+00	-5. 611D+00	4. 844D+00	-4. 445D+00
82	-4. 262D+00	-1. 158D-01	-5. 440D+00	3. 937D-02	-4. 570D-01	1. 454D+00
83	-3. 245D-01	-1. 646D-02	-4. 141D-01	1. 102D-02	-3. 184D-02	1. 075D-01
84	-3. 432D-01	4. 342D+00	-1. 020D+00	-5. 756D+00	2. 557D+00	-2. 260D+00
85	-4. 262D+00	-1. 158D-01	-5. 440D+00	3. 937D-02	-4. 570D-01	1. 454D+00
86	1. 844D-02	-7. 255D-03	2. 428D-02	7. 923D-03	2. 807D-03	-7. 510D-03
87	7. 181D-02	4. 392D+00	-2. 049D-01	-5. 900D+00	2. 707D-01	-7. 567D-02
88	-4. 262D+00	-1. 159D-01	-5. 440D+00	3. 937D-02	-4. 570D-01	1. 454D+00
89	3. 614D-01	1. 941D-03	4. 627D-01	4. 836D-03	3. 745D-02	-1. 225D-01
90	4. 868D-01	4. 441D+00	6. 105D-01	-6. 044D+00	-2. 016D+00	2. 109D+00
91	-4. 262D+00	-1. 159D-01	-5. 440D+00	3. 938D-02	-4. 570D-01	1. 454D+00
92	7. 043D-01	1. 113D-02	9. 010D-01	1. 753D-03	7. 208D-02	-2. 375D-01
93	9. 019D-01	4. 490D+00	1. 426D+00	-6. 189D+00	-4. 303D+00	4. 293D+00
94	-5. 034D+00	-1. 366D-01	-6. 426D+00	4. 638D-02	-5. 349D-01	1. 713D+00
95	-6. 673D-01	-2. 567D-02	-8. 523D-01	1. 414D-02	-6. 644D-02	2. 225D-01
96	-6. 428D-01	3. 256D+00	-1. 295D+00	-4. 109D+00	2. 123D+00	-1. 817D+00
97	-5. 034D+00	-1. 366D-01	-6. 426D+00	4. 635D-02	-5. 349D-01	1. 713D+00
98	-3. 245D-01	-1. 646D-02	-4. 141D-01	1. 102D-02	-3. 183D-02	1. 075D-01
99	-2. 892D-01	3. 292D+00	-7. 152D-01	-4. 186D+00	1. 148D+00	-9. 276D-01
100	-5. 034D+00	-1. 366D-01	-6. 426D+00	4. 633D-02	-5. 349D-01	1. 713D+00

ROW \ COL	1	2	3	4	5	6
101	1. 844D-02	-7. 257D-03	2. 428D-02	7. 926D-03	2. 807D-03	-7. 510D-03
102	6. 445D-02	3. 328D+00	-1. 353D-01	-4. 263D+00	1. 736D-01	-3. 854D-02
103	-5. 034D+00	-1. 365D-01	-6. 426D+00	4. 630D-02	-5. 349D-01	1. 713D+00
104	3. 614D-01	1. 938D-03	4. 626D-01	4. 840D-03	3. 744D-02	-1. 225D-01
105	4. 181D-01	3. 364D+00	4. 447D-01	-4. 341D+00	-8. 012D-01	8. 505D-01
106	-5. 034D+00	-1. 365D-01	-6. 426D+00	4. 628D-02	-5. 349D-01	1. 713D+00
107	7. 042D-01	1. 112D-02	9. 009D-01	1. 775D-03	7. 205D-02	-2. 375D-01
108	7. 717D-01	3. 401D+00	1. 025D+00	-4. 418D+00	-1. 776D+00	1. 740D+00
ROW \ COL	7	8	9	10	11	
1	1. 989D-05	2. 940D-05	-3. 811D-04	-3. 469D-04	-4. 376D-06	
2	1. 202D-07	1. 365D-03	7. 501D-06	-3. 433D-06	-2. 062D-08	
3	6. 614D-04	-5. 142D-03	2. 125D-05	4. 776D-06	-1. 509D-03	
4	5. 242D-04	-3. 462D-03	9. 698D-02	1. 080D-01	-1. 296D-03	
5	7. 234D-03	-1. 340D-02	1. 469D-02	3. 346D-02	-6. 080D-03	
6	-2. 006D-01	2. 695D-01	-3. 399D-02	-3. 349D-02	1. 484D-01	
7	5. 282D-04	-3. 465D-03	9. 702D-02	1. 081D-01	-1. 290D-03	
8	8. 822D-03	-1. 325D-02	5. 061D-03	1. 417D-02	-6. 637D-03	
9	-2. 240D-01	3. 028D-01	-1. 598D-02	-1. 559D-02	1. 682D-01	
10	5. 312D-04	-3. 468D-03	9. 703D-02	1. 081D-01	-1. 285D-03	
11	1. 041D-02	-1. 310D-02	-4. 364D-03	-4. 927D-03	-7. 179D-03	
12	-2. 474D-01	3. 361D-01	2. 031D-03	2. 310D-03	1. 879D-01	
13	5. 341D-04	-3. 470D-03	9. 702D-02	1. 081D-01	-1. 280D-03	
14	1. 199D-02	-1. 294D-02	-1. 379D-02	-2. 403D-02	-7. 718D-03	
15	-2. 708D-01	3. 694D-01	2. 004D-02	2. 021D-02	2. 077D-01	
16	5. 378D-04	-3. 473D-03	9. 698D-02	1. 080D-01	-1. 274D-03	
17	1. 357D-02	-1. 278D-02	-2. 341D-02	-4. 331D-02	-8. 238D-03	
18	-2. 942D-01	4. 027D-01	3. 805D-02	3. 811D-02	2. 274D-01	
19	-3. 037D-03	-3. 816D-03	1. 183D-01	1. 511D-01	-6. 641D-05	
20	7. 238D-03	-1. 341D-02	1. 439D-02	3. 318D-02	-6. 099D-03	
21	2. 807D+00	-2. 187D+00	4. 231D+00	4. 225D+00	4. 682D+00	
22	-3. 038D-03	-3. 815D-03	1. 183D-01	1. 511D-01	-6. 692D-05	
23	8. 822D-03	-1. 325D-02	5. 038D-03	1. 415D-02	-6. 638D-03	
24	2. 797D+00	-2. 171D+00	2. 125D+00	2. 121D+00	4. 724D+00	
25	-3. 038D-03	-3. 816D-03	1. 183D-01	1. 511D-01	-6. 860D-05	
26	1. 041D-02	-1. 310D-02	-4. 364D-03	-4. 928D-03	-7. 181D-03	
27	2. 786D+00	-2. 155D+00	1. 840D-02	1. 768D-02	4. 766D+00	
28	-3. 037D-03	-3. 816D-03	1. 183D-01	1. 511D-01	-7. 034D-05	
29	1. 199D-02	-1. 294D-02	-1. 377D-02	-2. 400D-02	-7. 719D-03	
30	2. 776D+00	-2. 139D+00	-2. 088D+00	-2. 086D+00	4. 808D+00	
31	-3. 039D-03	-3. 814D-03	1. 183D-01	1. 511D-01	-7. 059D-05	
32	1. 358D-02	-1. 279D-02	-2. 312D-02	-4. 304D-02	-8. 262D-03	
33	2. 766D+00	-2. 123D+00	-4. 194D+00	-4. 190D+00	4. 850D+00	
34	-6. 609D-03	-4. 162D-03	1. 393D-01	1. 939D-01	1. 148D-03	
35	7. 238D-03	-1. 341D-02	1. 422D-02	3. 301D-02	-6. 103D-03	
36	4. 547D+00	-3. 316D+00	8. 471D+00	8. 459D+00	4. 532D+00	
37	-6. 609D-03	-4. 161D-03	1. 393D-01	1. 939D-01	1. 149D-03	
38	8. 826D-03	-1. 325D-02	4. 923D-03	1. 404D-02	-6. 644D-03	
39	4. 570D+00	-3. 342D+00	4. 245D+00	4. 239D+00	4. 561D+00	
40	-6. 610D-03	-4. 160D-03	1. 393D-01	1. 939D-01	1. 150D-03	
41	1. 041D-02	-1. 310D-02	-4. 365D-03	-4. 928D-03	-7. 184D-03	
42	4. 593D+00	-3. 368D+00	1. 900D-02	1. 919D-02	4. 590D+00	

ROW \ COL	7	8	9	10	11
43	-6. 611D-03	-4. 159D-03	1. 393D-01	1. 939D-01	1. 150D-03
44	1. 200D-02	-1. 295D-02	-1. 365D-02	-2. 390D-02	-7. 726D-03
45	4. 616D+00	-3. 394D+00	-4. 207D+00	-4. 201D+00	4. 619D+00
46	-6. 612D-03	-4. 159D-03	1. 393D-01	1. 939D-01	1. 151D-03
47	1. 359D-02	-1. 279D-02	-2. 295D-02	-4. 287D-02	-8. 268D-03
48	4. 639D+00	-3. 420D+00	-8. 433D+00	-8. 421D+00	4. 649D+00
49	-1. 018D-02	-4. 506D-03	1. 601D-01	2. 365D-01	2. 367D-03
50	7. 242D-03	-1. 341D-02	1. 402D-02	3. 282D-02	-6. 107D-03
51	3. 759D+00	-1. 927D+00	2. 722D+00	2. 723D+00	-1. 351D+00
52	-1. 018D-02	-4. 506D-03	1. 601D-01	2. 365D-01	2. 368D-03
53	8. 829D-03	-1. 326D-02	4. 829D-03	1. 395D-02	-6. 649D-03
54	3. 794D+00	-1. 967D+00	1. 360D+00	1. 362D+00	-1. 373D+00
55	-1. 018D-02	-4. 505D-03	1. 601D-01	2. 365D-01	2. 368D-03
56	1. 042D-02	-1. 311D-02	-4. 366D-03	-4. 929D-03	-7. 189D-03
57	3. 829D+00	-2. 007D+00	-2. 456D-03	1. 269D-03	-1. 396D+00
58	-1. 018D-02	-4. 504D-03	1. 601D-01	2. 365D-01	2. 369D-03
59	1. 200D-02	-1. 295D-02	-1. 356D-02	-2. 391D-02	-7. 731D-03
60	3. 864D+00	-2. 048D+00	-1. 365D+00	-1. 360D+00	-1. 419D+00
61	-1. 019D-02	-4. 503D-03	1. 601D-01	2. 365D-01	2. 370D-03
62	1. 359D-02	-1. 280D-02	-2. 275D-02	-4. 268D-02	-8. 272D-03
63	3. 899D+00	-2. 088D+00	-2. 727D+00	-2. 721D+00	-1. 441D+00
64	-1. 376D-02	-4. 851D-03	1. 807D-01	2. 789D-01	3. 585D-03
65	7. 245D-03	-1. 341D-02	1. 384D-02	3. 264D-02	-6. 114D-03
66	9. 229D-01	1. 286D+00	-5. 904D+00	-5. 882D+00	-5. 506D+00
67	-1. 376D-02	-4. 849D-03	1. 807D-01	2. 789D-01	3. 585D-03
68	8. 834D-03	-1. 326D-02	4. 747D-03	1. 386D-02	-6. 653D-03
69	9. 490D-01	1. 259D+00	-2. 965D+00	-2. 951D+00	-5. 549D+00
70	-1. 376D-02	-4. 849D-03	1. 807D-01	2. 789D-01	3. 587D-03
71	1. 042D-02	-1. 311D-02	-4. 367D-03	-4. 930D-03	-7. 196D-03
72	9. 751D-01	1. 232D+00	-2. 634D-02	-1. 895D-02	-5. 592D+00
73	-1. 376D-02	-4. 849D-03	1. 807D-01	2. 789D-01	3. 589D-03
74	1. 201D-02	-1. 296D-02	-1. 348D-02	-2. 372D-02	-7. 735D-03
75	1. 001D+00	1. 205D+00	2. 912D+00	2. 913D+00	-5. 635D+00
76	-1. 376D-02	-4. 848D-03	1. 807D-01	2. 789D-01	3. 589D-03
77	1. 359D-02	-1. 280D-02	-2. 258D-02	-4. 250D-02	-8. 278D-03
78	1. 027D+00	1. 177D+00	5. 851D+00	5. 844D+00	-5. 679D+00
79	-1. 733D-02	-5. 189D-03	2. 011D-01	3. 211D-01	4. 798D-03
80	7. 252D-03	-1. 342D-02	1. 374D-02	3. 253D-02	-6. 114D-03
81	-2. 379D+00	4. 549D+00	-9. 385D+00	-9. 348D+00	-3. 189D+00
82	-1. 733D-02	-5. 192D-03	2. 011D-01	3. 211D-01	4. 802D-03
83	8. 839D-03	-1. 327D-02	4. 692D-03	1. 381D-02	-6. 664D-03
84	-2. 383D+00	4. 561D+00	-4. 708D+00	-4. 686D+00	-3. 187D+00
85	-1. 733D-02	-5. 195D-03	2. 011D-01	3. 211D-01	4. 804D-03
86	1. 042D-02	-1. 311D-02	-4. 367D-03	-4. 930D-03	-7. 205D-03
87	-2. 387D+00	4. 573D+00	-3. 220D-02	-2. 361D-02	-3. 186D+00
88	-1. 733D-02	-5. 198D-03	2. 011D-01	3. 211D-01	4. 806D-03
89	1. 201D-02	-1. 296D-02	-1. 343D-02	-2. 367D-02	-7. 745D-03
90	-2. 390D+00	4. 585D+00	4. 644D+00	4. 639D+00	-3. 184D+00
91	-1. 733D-02	-5. 199D-03	2. 011D-01	3. 211D-01	4. 812D-03
92	1. 360D-02	-1. 281D-02	-2. 247D-02	-4. 239D-02	-8. 276D-03

ROW \ COL	7	8	9	10	11
93	-2.394D+00	4.596D+00	9.320D+00	9.301D+00	-3.182D+00
94	-2.088D-02	-5.577D-03	2.213D-01	3.631D-01	6.062D-03
95	7.273D-03	-1.345D-02	1.368D-02	3.247D-02	-6.117D-03
96	-4.592D+00	6.305D+00	-5.889D+00	-5.856D+00	2.672D+00
97	-2.089D-02	-5.558D-03	2.214D-01	3.631D-01	6.039D-03
98	8.840D-03	-1.327D-02	4.675D-03	1.379D-02	-6.662D-03
99	-4.609D+00	6.333D+00	-2.953D+00	-2.933D+00	2.695D+00
100	-2.090D-02	-5.542D-03	2.214D-01	3.632D-01	6.020D-03
101	1.043D-02	-1.311D-02	-4.367D-03	-4.930D-03	-7.205D-03
102	-4.626D+00	6.361D+00	-1.715D-02	-1.022D-02	2.717D+00
103	-2.091D-02	-5.527D-03	2.214D-01	3.631D-01	6.001D-03
104	1.201D-02	-1.296D-02	-1.341D-02	-2.365D-02	-7.743D-03
105	-4.643D+00	6.389D+00	2.919D+00	2.913D+00	2.739D+00
106	-2.091D-02	-5.510D-03	2.213D-01	3.631D-01	5.977D-03
107	1.362D-02	-1.284D-02	-2.241D-02	-4.233D-02	-8.278D-03
108	-4.660D+00	6.416D+00	5.855D+00	5.835D+00	2.761D+00

*** VEEA2 MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	6.193D-03	-1.450D-04	-6.629D-03	2.549D-04	5.529D-04	1.764D-03
2	-3.030D-05	8.753D-07	1.265D-05	-2.174D-03	8.889D-05	-2.607D-05
3	1.070D-04	-6.144D-03	2.676D-05	-8.609D-03	3.860D-04	-3.804D-06
4	-4.019D-01	1.241D-02	5.044D-01	-1.506D-02	-6.664D-02	-1.586D-01
5	-6.671D-01	2.581D-02	8.514D-01	-1.981D-02	-6.702D-02	-2.224D-01
6	1.245D-02	1.504D-01	-2.550D-02	1.811D-01	-5.359D-02	-4.276D-02
7	-4.019D-01	1.241D-02	5.044D-01	-1.507D-02	-6.665D-02	-1.587D-01
8	-3.245D-01	1.654D-02	4.140D-01	-5.476D-03	-3.209D-02	-1.075D-01
9	3.335D-03	1.697D-01	-1.064D-02	2.065D-01	-2.965D-02	-1.958D-02
10	-4.019D-01	1.241D-02	5.044D-01	-1.507D-02	-6.666D-02	-1.587D-01
11	1.845D-02	7.255D-03	-2.387D-02	8.872D-03	2.819D-03	7.567D-03
12	-5.783D-03	1.890D-01	4.215D-03	2.319D-01	-5.702D-03	3.602D-03
13	-4.019D-01	1.240D-02	5.044D-01	-1.507D-02	-6.665D-02	-1.587D-01
14	3.614D-01	-2.030D-03	-4.617D-01	2.322D-02	3.773D-02	1.226D-01
15	-1.490D-02	2.084D-01	1.907D-02	2.573D-01	1.824D-02	2.678D-02
16	-4.019D-01	1.240D-02	5.044D-01	-1.507D-02	-6.664D-02	-1.586D-01
17	7.040D-01	-1.131D-02	-8.991D-01	3.754D-02	7.266D-02	2.376D-01
18	-2.402D-02	2.277D-01	3.393D-02	2.828D-01	4.219D-02	4.997D-02
19	-1.174D+00	3.331D-02	1.490D+00	-4.737D-02	-1.453D-01	-4.177D-01
20	-6.677D-01	2.583D-02	8.521D-01	-1.983D-02	-6.698D-02	-2.225D-01
21	2.096D-01	1.950D+00	-6.538D-01	2.770D+00	-3.024D+00	-2.818D+00
22	-1.174D+00	3.331D-02	1.490D+00	-4.737D-02	-1.453D-01	-4.177D-01
23	-3.245D-01	1.654D-02	4.140D-01	-5.476D-03	-3.208D-02	-1.075D-01
24	9.041D-02	1.985D+00	-3.301D-01	2.841D+00	-1.585D+00	-1.414D+00
25	-1.174D+00	3.331D-02	1.490D+00	-4.737D-02	-1.453D-01	-4.177D-01
26	1.845D-02	7.255D-03	-2.387D-02	8.873D-03	2.819D-03	7.567D-03
27	-2.876D-02	2.020D+00	-6.318D-03	2.913D+00	-1.463D-01	-1.032D-02
28	-1.174D+00	3.331D-02	1.490D+00	-4.737D-02	-1.453D-01	-4.177D-01
29	3.614D-01	-2.030D-03	-4.618D-01	2.322D-02	3.772D-02	1.226D-01
30	-1.479D-01	2.055D+00	3.174D-01	2.985D+00	1.293D+00	1.393D+00
31	-1.174D+00	3.331D-02	1.490D+00	-4.737D-02	-1.453D-01	-4.177D-01
32	7.046D-01	-1.132D-02	-8.999D-01	3.757D-02	7.262D-02	2.377D-01
33	-2.671D-01	2.090D+00	6.412D-01	3.057D+00	2.731D+00	2.797D+00
34	-1.946D+00	5.422D-02	2.476D+00	-7.968D-02	-2.238D-01	-6.767D-01
35	-6.679D-01	2.583D-02	8.524D-01	-1.984D-02	-6.695D-02	-2.226D-01
36	5.992D-01	3.473D+00	-1.780D+00	4.886D+00	-8.124D+00	-7.684D+00
37	-1.946D+00	5.422D-02	2.476D+00	-7.968D-02	-2.238D-01	-6.767D-01
38	-3.247D-01	1.654D-02	4.142D-01	-5.481D-03	-3.206D-02	-1.075D-01
39	2.751D-01	3.534D+00	-8.974D-01	5.037D+00	-4.194D+00	-3.853D+00
40	-1.946D+00	5.422D-02	2.476D+00	-7.968D-02	-2.238D-01	-6.767D-01
41	1.845D-02	7.255D-03	-2.387D-02	8.872D-03	2.820D-03	7.567D-03
42	-4.907D-02	3.594D+00	-1.445D-02	5.187D+00	-2.637D-01	-2.126D-02
43	-1.946D+00	5.422D-02	2.476D+00	-7.968D-02	-2.238D-01	-6.767D-01
44	3.616D-01	-2.033D-03	-4.620D-01	2.323D-02	3.770D-02	1.226D-01
45	-3.732D-01	3.655D+00	8.685D-01	5.337D+00	3.666D+00	3.810D+00
46	-1.946D+00	5.422D-02	2.476D+00	-7.968D-02	-2.238D-01	-6.767D-01
47	7.047D-01	-1.132D-02	-9.001D-01	3.758D-02	7.259D-02	2.377D-01
48	-6.974D-01	3.716D+00	1.751D+00	5.488D+00	7.597D+00	7.642D+00
49	-2.719D+00	7.513D-02	3.463D+00	-1.120D-01	-3.023D-01	-9.357D-01
50	-6.679D-01	2.584D-02	8.525D-01	-1.984D-02	-6.690D-02	-2.225D-01

ROW \ COL	1	2	3	4	5	6
51	7. 997D-01	4. 445D+00	-2. 271D+00	6. 177D+00	-9. 915D+00	-9. 351D+00
52	-2. 719D+00	7. 513D-02	3. 463D+00	-1. 120D-01	-3. 023D-01	-9. 357D-01
53	-3. 247D-01	1. 655D-02	4. 143D-01	-5. 481D-03	-3. 204D-02	-1. 075D-01
54	3. 680D-01	4. 515D+00	-1. 144D+00	6. 353D+00	-5. 121D+00	-4. 688D+00
55	-2. 719D+00	7. 513D-02	3. 463D+00	-1. 120D-01	-3. 023D-01	-9. 357D-01
56	1. 845D-02	7. 257D-03	-2. 387D-02	8. 874D-03	2. 820D-03	7. 568D-03
57	-6. 363D-02	4. 585D+00	-1. 666D-02	6. 528D+00	-3. 276D-01	-2. 476D-02
58	-2. 719D+00	7. 513D-02	3. 463D+00	-1. 120D-01	-3. 023D-01	-9. 357D-01
59	3. 616D-01	-2. 034D-03	-4. 620D-01	2. 323D-02	3. 768D-02	1. 226D-01
60	-4. 953D-01	4. 656D+00	1. 111D+00	6. 704D+00	4. 466D+00	4. 638D+00
61	-2. 719D+00	7. 513D-02	3. 463D+00	-1. 120D-01	-3. 023D-01	-9. 357D-01
62	7. 048D-01	-1. 132D-02	-9. 002D-01	3. 758D-02	7. 254D-02	2. 377D-01
63	-9. 270D-01	4. 726D+00	2. 238D+00	6. 879D+00	9. 260D+00	9. 301D+00
64	-3. 492D+00	9. 604D-02	4. 449D+00	-1. 443D-01	-3. 807D-01	-1. 195D+00
65	-6. 679D-01	2. 583D-02	8. 524D-01	-1. 983D-02	-6. 684D-02	-2. 224D-01
66	8. 606D-01	4. 716D+00	-2. 251D+00	6. 429D+00	-8. 955D+00	-8. 371D+00
67	-3. 492D+00	9. 604D-02	4. 449D+00	-1. 443D-01	-3. 808D-01	-1. 195D+00
68	-3. 247D-01	1. 655D-02	4. 142D-01	-5. 475D-03	-3. 201D-02	-1. 074D-01
69	3. 948D-01	4. 783D+00	-1. 131D+00	6. 586D+00	-4. 641D+00	-4. 195D+00
70	-3. 492D+00	9. 604D-02	4. 449D+00	-1. 443D-01	-3. 808D-01	-1. 195D+00
71	1. 845D-02	7. 258D-03	-2. 387D-02	8. 875D-03	2. 820D-03	7. 568D-03
72	-7. 096D-02	4. 851D+00	-1. 169D-02	6. 743D+00	-3. 276D-01	-1. 947D-02
73	-3. 492D+00	9. 605D-02	4. 449D+00	-1. 443D-01	-3. 808D-01	-1. 195D+00
74	3. 616D-01	-2. 031D-03	-4. 620D-01	2. 323D-02	3. 765D-02	1. 226D-01
75	-5. 367D-01	4. 918D+00	1. 108D+00	6. 900D+00	3. 986D+00	4. 156D+00
76	-3. 492D+00	9. 604D-02	4. 449D+00	-1. 443D-01	-3. 807D-01	-1. 195D+00
77	7. 048D-01	-1. 132D-02	-9. 001D-01	3. 758D-02	7. 248D-02	2. 376D-01
78	-1. 003D+00	4. 985D+00	2. 227D+00	7. 057D+00	8. 299D+00	8. 332D+00
79	-4. 264D+00	1. 170D-01	5. 436D+00	-1. 766D-01	-4. 591D-01	-1. 454D+00
80	-6. 677D-01	2. 584D-02	8. 521D-01	-1. 981D-02	-6. 679D-02	-2. 223D-01
81	7. 596D-01	4. 294D+00	-1. 638D+00	5. 726D+00	-4. 857D+00	-4. 365D+00
82	-4. 264D+00	1. 170D-01	5. 435D+00	-1. 766D-01	-4. 591D-01	-1. 454D+00
83	-3. 246D-01	1. 654D-02	4. 142D-01	-5. 475D-03	-3. 199D-02	-1. 074D-01
84	3. 444D-01	4. 344D+00	-8. 189D-01	5. 815D+00	-2. 564D+00	-2. 186D+00
85	-4. 264D+00	1. 170D-01	5. 435D+00	-1. 766D-01	-4. 591D-01	-1. 453D+00
86	1. 845D-02	7. 254D-03	-2. 388D-02	8. 870D-03	2. 820D-03	7. 568D-03
87	-7. 075D-02	4. 393D+00	-2. 588D-04	5. 903D+00	-2. 703D-01	-6. 798D-03
88	-4. 264D+00	1. 170D-01	5. 435D+00	-1. 766D-01	-4. 591D-01	-1. 454D+00
89	3. 615D-01	-2. 031D-03	-4. 619D-01	2. 322D-02	3. 763D-02	1. 225D-01
90	-4. 859D-01	4. 442D+00	8. 184D-01	5. 992D+00	2. 023D+00	2. 172D+00
91	-4. 264D+00	1. 170D-01	5. 435D+00	-1. 766D-01	-4. 591D-01	-1. 454D+00
92	7. 045D-01	-1. 131D-02	-8. 999D-01	3. 757D-02	7. 242D-02	2. 375D-01
93	-9. 011D-01	4. 492D+00	1. 637D+00	6. 080D+00	4. 316D+00	4. 352D+00
94	-5. 036D+00	1. 379D-01	6. 421D+00	-2. 088D-01	-5. 374D-01	-1. 712D+00
95	-6. 676D-01	2. 585D-02	8. 520D-01	-1. 979D-02	-6. 676D-02	-2. 223D-01
96	6. 439D-01	3. 257D+00	-1. 148D+00	4. 177D+00	-2. 128D+00	-1. 764D+00
97	-5. 036D+00	1. 379D-01	6. 421D+00	-2. 089D-01	-5. 374D-01	-1. 712D+00
98	-3. 246D-01	1. 655D-02	4. 141D-01	-5. 470D-03	-3. 198D-02	-1. 074D-01
99	2. 901D-01	3. 293D+00	-5. 662D-01	4. 221D+00	-1. 151D+00	-8. 770D-01
100	-5. 036D+00	1. 379D-01	6. 421D+00	-2. 089D-01	-5. 374D-01	-1. 712D+00

ROW \ COL	1	2	3	4	5	6
101	1. 845D-02	7. 256D-03	-2. 388D-02	8. 873D-03	2. 820D-03	7. 568D-03
102	-6. 365D-02	3. 329D+00	1. 543D-02	4. 265D+00	-1. 733D-01	9. 978D-03
103	-5. 036D+00	1. 378D-01	6. 421D+00	-2. 089D-01	-5. 374D-01	-1. 712D+00
104	3. 615D-01	-2. 028D-03	-4. 619D-01	2. 322D-02	3. 762D-02	1. 225D-01
105	-4. 174D-01	3. 365D+00	5. 971D-01	4. 309D+00	8. 043D-01	8. 970D-01
106	-5. 036D+00	1. 378D-01	6. 421D+00	-2. 090D-01	-5. 374D-01	-1. 712D+00
107	7. 045D-01	-1. 129D-02	-8. 998D-01	3. 759D-02	7. 240D-02	2. 374D-01
108	-7. 712D-01	3. 402D+00	1. 179D+00	4. 353D+00	1. 782D+00	1. 784D+00
ROW \ COL	7	8	9	10	11	
1	-1. 961D-05	-4. 866D-05	-3. 809D-04	3. 471D-04	3. 898D-06	
2	1. 202D-07	1. 365D-03	7. 501D-06	-3. 433D-06	-2. 062D-08	
3	6. 614D-04	5. 142D-03	-1. 969D-05	-4. 699D-06	-1. 509D-03	
4	-5. 248D-04	-5. 982D-04	9. 679D-02	-1. 082D-01	1. 297D-03	
5	-7. 234D-03	-8. 462D-03	1. 465D-02	-3. 348D-02	6. 083D-03	
6	-2. 006D-01	-2. 696D-01	3. 392D-02	-3. 339D-02	1. 484D-01	
7	-5. 288D-04	-6. 016D-04	9. 683D-02	-1. 083D-01	1. 291D-03	
8	-8. 822D-03	-1. 085D-02	5. 048D-03	-1. 418D-02	6. 638D-03	
9	-2. 240D-01	-3. 028D-01	1. 595D-02	-1. 544D-02	1. 681D-01	
10	-5. 317D-04	-6. 041D-04	9. 684D-02	-1. 083D-01	1. 286D-03	
11	-1. 041D-02	-1. 324D-02	-4. 356D-03	4. 938D-03	7. 178D-03	
12	-2. 474D-01	-3. 361D-01	-2. 027D-03	2. 520D-03	1. 879D-01	
13	-5. 346D-04	-6. 065D-04	9. 683D-02	-1. 083D-01	1. 281D-03	
14	-1. 199D-02	-1. 562D-02	-1. 376D-02	2. 405D-02	7. 716D-03	
15	-2. 708D-01	-3. 693D-01	-2. 000D-02	2. 048D-02	2. 077D-01	
16	-5. 384D-04	-6. 097D-04	9. 679D-02	-1. 082D-01	1. 275D-03	
17	-1. 356D-02	-1. 800D-02	-2. 336D-02	4. 335D-02	8. 234D-03	
18	-2. 942D-01	-4. 026D-01	-3. 798D-02	3. 843D-02	2. 274D-01	
19	3. 034D-03	4. 768D-03	1. 181D-01	-1. 514D-01	7. 088D-05	
20	-7. 239D-03	-8. 467D-03	1. 436D-02	-3. 320D-02	6. 101D-03	
21	2. 807D+00	2. 188D+00	-4. 223D+00	4. 233D+00	4. 682D+00	
22	3. 035D-03	4. 768D-03	1. 181D-01	-1. 514D-01	7. 138D-05	
23	-8. 821D-03	-1. 085D-02	5. 024D-03	-1. 416D-02	6. 639D-03	
24	2. 796D+00	2. 172D+00	-2. 121D+00	2. 125D+00	4. 724D+00	
25	3. 035D-03	4. 768D-03	1. 181D-01	-1. 514D-01	7. 306D-05	
26	-1. 041D-02	-1. 324D-02	-4. 356D-03	4. 938D-03	7. 181D-03	
27	2. 786D+00	2. 155D+00	-1. 837D-02	1. 742D-02	4. 766D+00	
28	3. 034D-03	4. 767D-03	1. 181D-01	-1. 514D-01	7. 480D-05	
29	-1. 199D-02	-1. 562D-02	-1. 374D-02	2. 403D-02	7. 717D-03	
30	2. 776D+00	2. 139D+00	2. 084D+00	-2. 090D+00	4. 808D+00	
31	3. 036D-03	4. 769D-03	1. 181D-01	-1. 514D-01	7. 505D-05	
32	-1. 358D-02	-1. 802D-02	-2. 307D-02	4. 308D-02	8. 258D-03	
33	2. 765D+00	2. 122D+00	4. 186D+00	-4. 198D+00	4. 850D+00	
34	6. 604D-03	1. 014D-02	1. 390D-01	-1. 942D-01	-1. 140D-03	
35	-7. 239D-03	-8. 466D-03	1. 418D-02	-3. 304D-02	6. 106D-03	
36	4. 547D+00	3. 321D+00	-8. 455D+00	8. 475D+00	4. 531D+00	
37	6. 604D-03	1. 014D-02	1. 390D-01	-1. 942D-01	-1. 141D-03	
38	-9. 826D-03	-1. 086D-02	4. 910D-03	-1. 404D-02	6. 645D-03	
39	4. 570D+00	3. 345D+00	-4. 237D+00	4. 247D+00	4. 561D+00	
40	6. 605D-03	1. 014D-02	1. 390D-01	-1. 942D-01	-1. 142D-03	
41	-1. 041D-02	-1. 324D-02	-4. 357D-03	4. 939D-03	7. 183D-03	
42	4. 592D+00	3. 369D+00	-1. 898D-02	1. 948D-02	4. 590D+00	

ROW \ COL	7	8	9	10	11
43	6. 606D-03	1. 015D-02	1. 390D-01	-1. 942D-01	-1. 143D-03
44	-1. 200D-02	-1. 563D-02	-1. 362D-02	2. 392D-02	7. 724D-03
45	4. 615D+00	3. 393D+00	4. 199D+00	-4. 208D+00	4. 619D+00
46	6. 606D-03	1. 015D-02	1. 390D-01	-1. 942D-01	-1. 144D-03
47	-1. 358D-02	-1. 802D-02	-2. 290D-02	4. 292D-02	8. 264D-03
48	4. 638D+00	3. 416D+00	8. 417D+00	-8. 436D+00	4. 648D+00
49	1. 018D-02	1. 552D-02	1. 597D-01	-2. 368D-01	-2. 356D-03
50	-7. 243D-03	-8. 470D-03	1. 399D-02	-3. 284D-02	6. 110D-03
51	3. 758D+00	1. 930D+00	-2. 717D+00	2. 730D+00	-1. 351D+00
52	1. 018D-02	1. 552D-02	1. 598D-01	-2. 368D-01	-2. 356D-03
53	-8. 829D-03	-1. 086D-02	4. 817D-03	-1. 395D-02	6. 650D-03
54	3. 793D+00	1. 969D+00	-1. 357D+00	1. 367D+00	-1. 373D+00
55	1. 018D-02	1. 552D-02	1. 598D-01	-2. 368D-01	-2. 357D-03
56	-1. 042D-02	-1. 325D-02	-4. 358D-03	4. 940D-03	7. 189D-03
57	3. 828D+00	2. 008D+00	2. 401D-03	3. 535D-03	-1. 396D+00
58	1. 018D-02	1. 552D-02	1. 598D-01	-2. 368D-01	-2. 358D-03
59	-1. 200D-02	-1. 564D-02	-1. 353D-02	2. 383D-02	7. 729D-03
60	3. 864D+00	2. 047D+00	1. 362D+00	-1. 360D+00	-1. 419D+00
61	1. 018D-02	1. 553D-02	1. 597D-01	-2. 368D-01	-2. 358D-03
62	-1. 359D-02	-1. 803D-02	-2. 270D-02	4. 272D-02	8. 269D-03
63	3. 899D+00	2. 085D+00	2. 722D+00	-2. 723D+00	-1. 441D+00
64	1. 375D-02	2. 090D-02	1. 803D-01	-2. 792D-01	-3. 570D-03
65	-7. 245D-03	-8. 473D-03	1. 381D-02	-3. 266D-02	6. 117D-03
66	9. 229D-01	-1. 286D+00	5. 893D+00	-5. 889D+00	-5. 506D+00
67	1. 375D-02	2. 090D-02	1. 803D-01	-2. 792D-01	-3. 570D-03
68	-8. 833D-03	-1. 087D-02	4. 734D-03	-1. 387D-02	6. 654D-03
69	9. 490D-01	-1. 259D+00	2. 959D+00	-2. 952D+00	-5. 549D+00
70	1. 375D-02	2. 090D-02	1. 803D-01	-2. 792D-01	-3. 572D-03
71	-1. 042D-02	-1. 325D-02	-4. 358D-03	4. 941D-03	7. 195D-03
72	9. 750D-01	-1. 232D+00	2. 622D-02	-1. 466D-02	-5. 592D+00
73	1. 375D-02	2. 090D-02	1. 803D-01	-2. 792D-01	-3. 574D-03
74	-1. 200D-02	-1. 564D-02	-1. 345D-02	2. 375D-02	7. 733D-03
75	1. 001D+00	-1. 205D+00	-2. 907D+00	2. 922D+00	-5. 635D+00
76	1. 375D-02	2. 090D-02	1. 803D-01	-2. 792D-01	-3. 574D-03
77	-1. 359D-02	-1. 803D-02	-2. 253D-02	4. 254D-02	8. 275D-03
78	1. 027D+00	-1. 177D+00	-5. 840D+00	5. 860D+00	-5. 678D+00
79	1. 732D-02	2. 628D-02	2. 006D-01	-3. 214D-01	-4. 779D-03
80	-7. 253D-03	-8. 485D-03	1. 370D-02	-3. 255D-02	6. 116D-03
81	-2. 379D+00	-4. 554D+00	9. 367D+00	-9. 361D+00	-3. 189D+00
82	1. 732D-02	2. 628D-02	2. 006D-01	-3. 214D-01	-4. 784D-03
83	-8. 838D-03	-1. 087D-02	4. 679D-03	-1. 381D-02	6. 665D-03
84	-2. 383D+00	-4. 563D+00	4. 700D+00	-4. 690D+00	-3. 187D+00
85	1. 732D-02	2. 628D-02	2. 006D-01	-3. 214D-01	-4. 786D-03
86	-1. 042D-02	-1. 325D-02	-4. 359D-03	4. 941D-03	7. 205D-03
87	-2. 387D+00	-4. 573D+00	3. 209D-02	-1. 864D-02	-3. 185D+00
88	1. 732D-02	2. 628D-02	2. 006D-01	-3. 214D-01	-4. 788D-03
89	-1. 201D-02	-1. 565D-02	-1. 340D-02	2. 369D-02	7. 743D-03
90	-2. 390D+00	-4. 583D+00	-4. 635D+00	4. 652D+00	-3. 184D+00
91	1. 732D-02	2. 627D-02	2. 006D-01	-3. 214D-01	-4. 793D-03
92	-1. 359D-02	-1. 803D-02	-2. 242D-02	4. 243D-02	8. 272D-03

ROW \ COL	7	8	9	10	11
93	-2. 394D+00	-4. 593D+00	-9. 303D+00	9. 323D+00	-3. 182D+00
94	2. 087D-02	3. 161D-02	2. 209D-01	-3. 635D-01	-6. 040D-03
95	-7. 274D-03	-8. 515D-03	1. 365D-02	-3. 249D-02	6. 120D-03
96	-4. 592D+00	-6. 311D+00	5. 878D+00	-5. 863D+00	2. 672D+00
97	2. 088D-02	3. 163D-02	2. 209D-01	-3. 635D-01	-6. 018D-03
98	-8. 840D-03	-1. 087D-02	4. 662D-03	-1. 379D-02	6. 663D-03
99	-4. 608D+00	-6. 336D+00	2. 947D+00	-2. 934D+00	2. 694D+00
100	2. 088D-02	3. 165D-02	2. 209D-01	-3. 636D-01	-5. 999D-03
101	-1. 042D-02	-1. 326D-02	-4. 359D-03	4. 941D-03	7. 205D-03
102	-4. 625D+00	-6. 361D+00	1. 709D-02	-6. 112D-03	2. 717D+00
103	2. 089D-02	3. 167D-02	2. 209D-01	-3. 635D-01	-5. 979D-03
104	-1. 201D-02	-1. 565D-02	-1. 338D-02	2. 368D-02	7. 741D-03
105	-4. 642D+00	-6. 387D+00	-2. 913D+00	2. 922D+00	2. 739D+00
106	2. 090D-02	3. 168D-02	2. 209D-01	-3. 635D-01	-5. 955D-03
107	-1. 361D-02	-1. 806D-02	-2. 236D-02	4. 237D-02	8. 275D-03
108	-4. 659D+00	-6. 412D+00	-5. 844D+00	5. 851D+00	2. 761D+00

*** VEER1. MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	5.889D-03	3.128D-06	-1.367D-05	1.321D-04	1.212D-03	3.292D-06
2	-1.514D-04	-1.724D-04	-7.898D-03	7.864D-03	-3.557D-04	2.181D-03
3	-3.220D-04	-6.139D-03	1.175D-04	4.428D-05	6.957D-04	6.137D-05
4	5.608D-03	7.729D-06	-3.336D-05	1.726D-04	1.819D-03	7.964D-06
5	-2.629D-04	-2.311D-04	-1.051D-02	1.698D-02	-7.652D-04	2.970D-03
6	-4.317D-04	-6.137D-03	1.098D-04	6.012D-05	9.333D-04	6.320D-05
7	5.030D-03	4.503D-04	2.003D-02	-1.853D-04	3.067D-03	-5.297D-03
8	-4.922D-04	-3.712D-04	-1.677D-02	3.574D-02	-1.607D-03	4.827D-03
9	-1.019D-03	-6.134D-03	3.930D-04	2.643D-02	3.112D-04	2.693D-04
10	4.949D-03	1.563D-05	-7.963D-05	2.680D-04	3.252D-03	1.905D-05
11	-5.247D-04	-3.713D-04	-1.674D-02	3.838D-02	-1.726D-03	4.846D-03
12	-6.941D-04	-6.134D-03	9.139D-05	9.811D-05	1.503D-03	6.761D-05
13	5.032D-03	-4.201D-04	-2.018D-02	6.976D-04	3.079D-03	5.333D-03
14	-4.923D-04	-3.713D-04	-1.677D-02	3.574D-02	-1.607D-03	4.827D-03
15	-3.691D-04	-6.133D-03	-2.102D-04	-2.623D-02	2.695D-03	-1.340D-04
16	5.232D-03	6.670D-04	3.009D-02	-4.317D-04	2.623D-03	-7.955D-03
17	-4.117D-04	-7.478D-04	-3.424D-02	2.964D-02	-1.308D-03	9.375D-03
18	-1.892D-03	-6.131D-03	4.893D-04	3.969D-02	1.265D-03	3.841D-04
19	5.069D-03	2.325D-04	9.982D-03	3.011D-05	2.987D-03	-2.640D-03
20	-4.765D-04	-7.480D-04	-3.418D-02	3.490D-02	-1.546D-03	9.417D-03
21	-1.567D-03	-6.130D-03	1.917D-04	1.336D-02	2.456D-03	1.808D-04
22	5.070D-03	-2.027D-04	-1.012D-02	4.711D-04	2.993D-03	2.674D-03
23	-4.765D-04	-7.479D-04	-3.418D-02	3.490D-02	-1.546D-03	9.417D-03
24	-1.242D-03	-6.130D-03	-1.084D-04	-1.296D-02	3.648D-03	-2.140D-05
25	5.235D-03	-6.384D-04	-3.021D-02	8.853D-04	2.641D-03	7.984D-03
26	-4.116D-04	-7.479D-04	-3.424D-02	2.964D-02	-1.308D-03	9.375D-03
27	-9.177D-04	-6.130D-03	-4.060D-04	-3.928D-02	4.840D-03	-2.246D-04
28	5.599D-03	8.835D-04	4.017D-02	-7.020D-04	1.820D-03	-1.062D-02
29	-2.660D-04	-1.124D-03	-5.177D-02	1.827D-02	-7.709D-04	1.388D-02
30	-2.766D-03	-6.129D-03	5.855D-04	5.295D-02	2.220D-03	4.990D-04
31	5.353D-03	4.490D-04	2.005D-02	-2.291D-04	2.364D-03	-5.301D-03
32	-3.634D-04	-1.124D-03	-5.168D-02	2.616D-02	-1.128D-03	1.394D-02
33	-2.441D-03	-6.129D-03	2.891D-04	2.663D-02	3.411D-03	2.953D-04
34	5.272D-03	1.413D-05	-5.707D-05	2.213D-04	2.549D-03	1.356D-05
35	-3.958D-04	-1.124D-03	-5.165D-02	2.880D-02	-1.247D-03	1.396D-02
36	-2.117D-03	-6.128D-03	-8.083D-06	3.043D-04	4.603D-03	9.187D-05
37	5.355D-03	-4.212D-04	-2.015D-02	6.478D-04	2.376D-03	5.325D-03
38	-3.633D-04	-1.124D-03	-5.168D-02	2.616D-02	-1.128D-03	1.394D-02
39	-1.792D-03	-6.128D-03	-3.053D-04	-2.602D-02	5.795D-03	-1.115D-04
40	5.602D-03	-8.569D-04	-4.023D-02	1.049D-03	1.844D-03	1.063D-02
41	-2.659D-04	-1.124D-03	-5.177D-02	1.827D-02	-7.706D-04	1.388D-02
42	-1.467D-03	-6.128D-03	-6.017D-04	-5.234D-02	6.987D-03	-3.152D-04
43	5.802D-03	6.655D-04	3.013D-02	-5.119D-04	1.381D-03	-7.964D-03
44	-1.853D-04	-1.501D-03	-6.924D-02	1.216D-02	-4.721D-04	1.843D-02
45	-3.316D-03	-6.127D-03	3.863D-04	3.989D-02	4.367D-03	4.098D-04
46	5.639D-03	2.308D-04	1.002D-02	-5.071D-05	1.746D-03	-2.649D-03
47	-2.502D-04	-1.501D-03	-6.918D-02	1.743D-02	-7.103D-04	1.847D-02
48	-2.991D-03	-6.127D-03	9.021D-05	1.357D-02	5.559D-03	2.060D-04
49	5.639D-03	-2.043D-04	-1.008D-02	3.869D-04	1.752D-03	2.664D-03
50	-2.502D-04	-1.501D-03	-6.918D-02	1.743D-02	-7.103D-04	1.847D-02

ROW \ COL	1	2	3	4	5	6
51	-2. 667D-03	-6. 126D-03	-2. 058D-04	-1. 275D-02	6. 750D-03	2. 119D-06
52	5. 805D-03	-6. 398D-04	-3. 017D-02	8. 004D-04	1. 400D-03	7. 973D-03
53	-1. 853D-04	-1. 501D-03	-6. 924D-02	1. 216D-02	-4. 719D-04	1. 843D-02
54	-2. 342D-03	-6. 126D-03	-5. 019D-04	-3. 907D-02	7. 942D-03	-2. 017D-04
55	6. 170D-03	4. 473D-04	2. 011D-02	-3. 458D-04	5. 858D-04	-5. 314D-03
56	-3. 991D-05	-1. 877D-03	-8. 678D-02	8. 156D-04	6. 410D-05	2. 294D-02
57	-3. 866D-03	-6. 126D-03	1. 879D-04	2. 683D-02	6. 515D-03	3. 203D-04
58	6. 088D-03	1. 233D-05	-6. 256D-08	1. 030D-04	7. 704D-04	-3. 963D-07
59	-7. 229D-05	-1. 877D-03	-8. 675D-02	3. 438D-03	-5. 456D-05	2. 296D-02
60	-3. 542D-03	-6. 125D-03	-1. 076D-04	5. 106D-04	7. 706D-03	1. 162D-04
61	6. 171D-03	-4. 230D-04	-2. 010D-02	5. 281D-04	5. 979D-04	5. 311D-03
62	-3. 996D-05	-1. 877D-03	-8. 678D-02	8. 156D-04	6. 423D-05	2. 294D-02
63	-3. 217D-03	-6. 125D-03	-4. 030D-04	-2. 581D-02	8. 898D-03	-8. 785D-05
ROW \ COL	7	8	9	10	11	
1	-4. 945D-07	-1. 907D-05	-5. 182D-04	1. 320D-06	9. 135D-07	
2	-2. 380D-05	-4. 558D-03	3. 101D-05	4. 223D-04	4. 977D-06	
3	6. 607D-04	-9. 922D-06	-1. 446D-04	1. 301D-06	-1. 507D-03	
4	-1. 082D-06	-2. 775D-05	-6. 444D-04	2. 415D-06	1. 973D-06	
5	-3. 193D-05	-9. 981D-03	5. 257D-05	5. 701D-04	6. 665D-06	
6	6. 605D-04	-1. 332D-05	-1. 940D-04	1. 730D-06	-1. 507D-03	
7	5. 577D-05	-1. 998D-04	-9. 155D-04	-7. 487D-04	-3. 900D-05	
8	-5. 097D-05	-2. 107D-02	9. 636D-05	8. 948D-04	1. 117D-05	
9	6. 602D-04	-1. 565D-02	-2. 586D-04	8. 224D-05	-1. 524D-03	
10	1. 199D-06	-4. 867D-05	-9. 617D-04	5. 174D-06	-5. 082D-05	
11	-5. 094D-05	-2. 263D-02	1. 022D-04	8. 987D-04	1. 011D-05	
12	6. 614D-04	-2. 164D-05	-3. 204D-04	2. 828D-06	-1. 528D-03	
13	-5. 519D-05	1. 079D-04	-9. 233D-04	7. 583D-04	-2. 941D-05	
14	-5. 083D-05	-2. 107D-02	9. 580D-05	8. 949D-04	8. 924D-06	
15	6. 623D-04	1. 560D-02	-3. 820D-04	-7. 659D-05	-1. 527D-03	
16	8. 060D-05	-2. 846D-04	-8. 057D-04	-1. 116D-03	6. 571D-06	
17	-9. 854D-05	-1. 709D-02	7. 773D-05	1. 517D-03	1. 394D-05	
18	6. 687D-04	-2. 345D-02	-6. 052D-04	1. 319D-04	-1. 683D-03	
19	2. 767D-05	-1. 226D-04	-8. 979D-04	-3. 715D-04	-3. 016D-05	
20	-9. 877D-05	-2. 020D-02	8. 968D-05	1. 538D-03	1. 369D-05	
21	6. 695D-04	-7. 850D-03	-6. 638D-04	4. 685D-05	-1. 678D-03	
22	-2. 779D-05	3. 309D-05	-9. 018D-04	3. 807D-04	-2. 540D-05	
23	-9. 880D-05	-2. 020D-02	8. 983D-05	1. 538D-03	1. 426D-05	
24	6. 705D-04	7. 761D-03	-7. 253D-04	-3. 465D-05	-1. 680D-03	
25	-8. 549D-05	2. 059D-04	-8. 178D-04	1. 124D-03	2. 043D-05	
26	-9. 848D-05	-1. 709D-02	7. 715D-05	1. 517D-03	1. 312D-05	
27	6. 720D-04	2. 336D-02	-7. 897D-04	-1. 197D-04	-1. 688D-03	
28	1. 027D-04	-3. 639D-04	-6. 060D-04	-1. 488D-03	9. 883D-05	
29	-1. 459D-04	-9. 975D-03	4. 699D-05	2. 121D-03	1. 703D-05	
30	6. 786D-04	-3. 126D-02	-9. 574D-04	1. 818D-04	-1. 862D-03	
31	5. 120D-05	-2. 012D-04	-7. 434D-04	-7. 427D-04	3. 852D-05	
32	-1. 462D-04	-1. 465D-02	6. 495D-05	2. 147D-03	1. 698D-05	
33	6. 795D-04	-1. 566D-02	-1. 017D-03	9. 506D-05	-1. 860D-03	
34	-2. 898D-06	-3. 808D-05	-7. 919D-04	3. 681D-06	2. 142D-05	
35	-1. 463D-04	-1. 621D-02	7. 107D-05	2. 157D-03	1. 738D-05	
36	6. 804D-04	-6. 845D-05	-1. 077D-03	9. 456D-06	-1. 858D-03	
37	-5. 952D-05	1. 305D-04	-7. 515D-04	7. 493D-04	4. 773D-05	

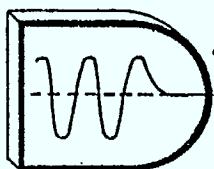
ROW \ COL	7	8	9	10	11
38	-1.462D-04	-1.465D-02	6.488D-05	2.147D-03	1.735D-05
39	6.917D-04	1.553D-02	-1.140D-03	-7.613D-05	-1.863D-03
40	-1.186D-04	3.095D-04	-6.223D-04	1.492D-03	1.172D-04
41	-1.458D-04	-9.975D-03	4.599D-05	2.121D-03	1.614D-05
42	6.831D-04	3.112D-02	-1.203D-03	-1.628D-04	-1.869D-03
43	7.188D-05	-2.753D-04	-4.990D-04	-1.117D-03	1.555D-04
44	-1.935D-04	-5.988D-03	2.815D-05	2.742D-03	2.057D-05
45	6.900D-04	-2.348D-02	-1.371D-03	1.436D-04	-2.050D-03
46	1.910D-05	-1.106D-04	-5.920D-04	-3.708D-04	1.163D-04
47	-1.937D-04	-9.107D-03	4.017D-05	2.760D-03	2.054D-05
48	6.911D-04	-7.887D-03	-1.431D-03	5.644D-05	-2.050D-03
49	-3.625D-05	5.868D-05	-5.961D-04	3.747D-04	1.209D-04
50	-1.937D-04	-9.107D-03	4.007D-05	2.760D-03	2.031D-05
51	6.922D-04	7.703D-03	-1.493D-03	-3.075D-05	-2.051D-03
52	-9.415D-05	2.344D-04	-5.112D-04	1.119D-03	1.693D-04
53	-1.934D-04	-5.988D-03	2.754D-05	2.742D-03	1.951D-05
54	6.935D-04	2.329D-02	-1.555D-03	-1.179D-04	-2.055D-03
55	3.831D-05	-1.801D-04	-3.032D-04	-7.461D-04	2.582D-04
56	-2.409D-04	1.104D-03	-2.812D-06	3.347D-03	2.383D-05
57	7.019D-04	-1.570D-02	-1.786D-03	1.042D-04	-2.243D-03
58	-1.576D-05	-1.107D-05	-3.516D-04	-1.979D-07	2.409D-04
59	-2.409D-04	-4.489D-04	3.092D-06	3.356D-03	2.333D-05
60	7.031D-04	-1.156D-04	-1.847D-03	1.624D-05	-2.245D-03
61	-7.238D-05	1.634D-04	-3.114D-04	7.450D-04	2.673D-04
62	-2.408D-04	1.104D-03	-3.227D-06	3.347D-03	2.245D-05
63	7.043D-04	1.547D-02	-1.908D-03	-7.172D-05	-2.247D-03

*** VEER2 MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	5. 889D-03	3. 12BD-06	-1. 367D-05	1. 321D-04	1. 212D-03	3. 292D-06
2	-1. 517D-04	1. 743D-04	8. 183D-03	7. 460D-03	-3. 576D-04	-2. 097D-03
3	3. 239D-04	-6. 149D-03	1. 629D-04	-4. 902D-05	-7. 034D-04	5. 061D-05
4	5. 608D-03	7. 729D-06	-3. 336D-05	1. 726D-04	1. 819D-03	7. 964D-06
5	-2. 633D-04	2. 333D-04	1. 103D-02	1. 644D-02	-7. 677D-04	-2. 760D-03
6	4. 335D-04	-6. 151D-03	1. 706D-04	-6. 486D-05	-9. 410D-04	4. 878D-05
7	5. 031D-03	-4. 159D-04	-2. 018D-02	8. 227D-04	3. 072D-03	5. 334D-03
8	-4. 927D-04	3. 738D-04	1. 778D-02	3. 488D-02	-1. 611D-03	-4. 358D-03
9	1. 021D-03	-6. 156D-03	-1. 584D-04	-2. 646D-02	-3. 146D-04	-1. 387D-04
10	4. 949D-03	2. 148D-05	-7. 984D-05	2. 680D-04	3. 252D-03	1. 892D-05
11	-5. 252D-04	3. 739D-04	1. 782D-02	3. 751D-02	-1. 730D-03	-4. 341D-03
12	6. 956D-04	-6. 156D-03	1. 890D-04	-1. 027D-04	-1. 509D-03	4. 441D-05
13	5. 031D-03	4. 545D-04	2. 003D-02	-3. 104D-04	3. 074D-03	-5. 298D-03
14	-4. 928D-04	3. 739D-04	1. 778D-02	3. 488D-02	-1. 611D-03	-4. 358D-03
15	3. 706D-04	-6. 155D-03	5. 364D-04	2. 626D-02	-2. 703D-03	2. 275D-04
16	5. 233D-03	-6. 392D-04	-3. 021D-02	1. 080D-03	2. 630D-03	7. 985D-03
17	-4. 127D-04	7. 502D-04	3. 508D-02	2. 790D-02	-1. 316D-03	-8. 997D-03
18	1. 890D-03	-6. 168D-03	-2. 825D-04	-3. 974D-02	-1. 249D-03	-2. 421D-04
19	5. 069D-03	-1. 993D-04	-1. 012D-02	5. 341D-04	2. 989D-03	2. 675D-03
20	-4. 775D-04	7. 505D-04	3. 516D-02	3. 316D-02	-1. 554D-03	-8. 966D-03
21	1. 565D-03	-6. 167D-03	6. 492D-05	-1. 338D-02	-2. 443D-03	-5. 894D-05
22	5. 069D-03	2. 359D-04	9. 981D-03	-3. 286D-05	2. 990D-03	-2. 641D-03
23	-4. 775D-04	7. 504D-04	3. 516D-02	3. 316D-02	-1. 554D-03	-8. 966D-03
24	1. 240D-03	-6. 167D-03	4. 124D-04	1. 297D-02	-3. 637D-03	1. 242D-04
25	5. 234D-03	6. 661D-04	3. 009D-02	-6. 262D-04	2. 634D-03	-7. 957D-03
26	-4. 126D-04	7. 503D-04	3. 508D-02	2. 790D-02	-1. 316D-03	-8. 997D-03
27	9. 149D-04	-6. 167D-03	7. 598D-04	3. 933D-02	-4. 831D-03	3. 073D-04
28	5. 600D-03	-8. 678D-04	-4. 023D-02	1. 313D-03	1. 829D-03	1. 064D-02
29	-2. 675D-04	1. 126D-03	5. 230D-02	1. 566D-02	-7. 829D-04	-1. 367D-02
30	2. 759D-03	-6. 179D-03	-4. 066D-04	-5. 303D-02	-2. 183D-03	-3. 454D-04
31	5. 354D-03	-4. 252D-04	-2. 015D-02	7. 786D-04	2. 368D-03	5. 326D-03
32	-3. 649D-04	1. 127D-03	5. 242D-02	2. 355D-02	-1. 140D-03	-1. 362D-02
33	2. 434D-03	-6. 179D-03	-5. 915D-05	-2. 667D-02	-3. 377D-03	-1. 623D-04
34	5. 272D-03	1. 240D-05	-5. 701D-05	2. 213D-04	2. 549D-03	1. 360D-05
35	-3. 974D-04	1. 127D-03	5. 246D-02	2. 618D-02	-1. 259D-03	-1. 360D-02
36	2. 109D-03	-6. 179D-03	2. 883D-04	-3. 069D-04	-4. 571D-03	2. 084D-05
37	5. 354D-03	4. 450D-04	2. 005D-02	-3. 599D-04	2. 371D-03	-5. 302D-03
38	-3. 649D-04	1. 127D-03	5. 242D-02	2. 355D-02	-1. 140D-03	-1. 362D-02
39	1. 784D-03	-6. 179D-03	6. 357D-04	2. 605D-02	-5. 765D-03	2. 040D-04
40	5. 601D-03	8. 727D-04	4. 016D-02	-9. 660D-04	1. 835D-03	-1. 062D-02
41	-2. 674D-04	1. 126D-03	5. 230D-02	1. 566D-02	-7. 826D-04	-1. 367D-02
42	1. 459D-03	-6. 178D-03	9. 831D-04	5. 241D-02	-6. 959D-03	3. 871D-04
43	5. 803D-03	-6. 564D-04	-3. 017D-02	9. 995D-04	1. 388D-03	7. 975D-03
44	-1. 873D-04	1. 503D-03	6. 960D-02	8. 681D-03	-4. 880D-04	-1. 831D-02
45	3. 303D-03	-6. 191D-03	-1. 832D-04	-3. 995D-02	-4. 311D-03	-2. 656D-04
46	5. 639D-03	-2. 163D-04	-1. 008D-02	4. 531D-04	1. 748D-03	2. 664D-03
47	-2. 523D-04	1. 503D-03	6. 968D-02	1. 394D-02	-7. 263D-04	-1. 828D-02
48	2. 978D-03	-6. 191D-03	1. 642D-04	-1. 359D-02	-5. 505D-03	-8. 251D-05
49	5. 639D-03	2. 188D-04	1. 002D-02	-1. 169D-04	1. 750D-03	-2. 649D-03
50	-2. 523D-04	1. 503D-03	6. 968D-02	1. 394D-02	-7. 263D-04	-1. 828D-02

ROW \ COL	1	2	3	4	5	6
51	2. 654D-03	-6. 190D-03	5. 117D-04	1. 277D-02	-6. 699D-03	1. 006D-04
52	5. 804D-03	6. 489D-04	3. 013D-02	-7. 110D-04	1. 393D-03	-7. 965D-03
53	-1. 873D-04	1. 503D-03	6. 960D-02	8. 681D-03	-4. 879D-04	-1. 831D-02
54	2. 329D-03	-6. 190D-03	8. 591D-04	3. 913D-02	-7. 893D-03	2. 838D-04
55	6. 170D-03	-4. 502D-04	-2. 009D-02	6. 618D-04	5. 904D-04	5. 312D-03
56	-4. 244D-05	1. 879D-03	8. 682D-02	-3. 537D-03	4. 414D-05	-2. 298D-02
57	3. 848D-03	-6. 202D-03	4. 015D-05	-2. 687D-02	-6. 439D-03	-1. 859D-04
58	6. 088D-03	-1. 255D-05	8. 375D-07	1. 030D-04	7. 704D-04	1. 610D-07
59	-7. 482D-05	1. 879D-03	8. 686D-02	-9. 151D-04	-7. 452D-05	-2. 296D-02
60	3. 523D-03	-6. 202D-03	3. 876D-04	-5. 111D-04	-7. 633D-03	-2. 722D-06
61	6. 171D-03	4. 201D-04	2. 011D-02	-4. 795D-04	5. 932D-04	-5. 315D-03
62	-4. 249D-05	1. 879D-03	8. 682D-02	-3. 537D-03	4. 427D-05	-2. 298D-02
63	3. 198D-03	-6. 202D-03	7. 350D-04	2. 585D-02	-8. 827D-03	1. 804D-04
ROW \ COL	7	8	9	10	11	
1	-4. 945D-07	-1. 907D-05	-5. 182D-04	1. 320D-06	9. 135D-07	
2	2. 405D-05	-4. 464D-03	3. 077D-05	-4. 184D-04	-5. 047D-06	
3	6. 621D-04	1. 009D-05	1. 462D-04	-1. 224D-06	-1. 510D-03	
4	-1. 082D-06	-2. 775D-05	-6. 444D-04	2. 415D-06	1. 973D-06	
5	3. 217D-05	-9. 854D-03	5. 225D-05	-5. 562D-04	-6. 763D-06	
6	6. 623D-04	1. 349D-05	1. 956D-04	-1. 653D-06	-1. 510D-03	
7	-6. 039D-05	-4. 156D-04	-9. 151D-04	7. 593D-04	4. 779D-05	
8	5. 122D-05	-2. 087D-02	9. 586D-05	-8. 607D-04	-1. 133D-05	
9	6. 628D-04	1. 577D-02	2. 508D-04	-1. 719D-05	-1. 511D-03	
10	-6. 185D-06	-4. 867D-05	-9. 618D-04	5. 172D-06	6. 046D-05	
11	5. 119D-05	-2. 243D-02	1. 017D-04	-8. 617D-04	-1. 026D-05	
12	6. 628D-04	2. 161D-05	3. 135D-04	-2. 677D-06	-1. 511D-03	
13	5. 055D-05	3. 236D-04	-9. 237D-04	-7. 497D-04	3. 823D-05	
14	5. 108D-05	-2. 087D-02	9. 530D-05	-8. 607D-04	-9. 059D-06	
15	6. 628D-04	-1. 573D-02	3. 762D-04	1. 183D-05	-1. 511D-03	
16	-8. 432D-05	-6. 074D-04	-8. 051D-04	1. 125D-03	6. 523D-08	
17	9. 878D-05	-1. 670D-02	7. 688D-05	-1. 491D-03	-1. 406D-05	
18	6. 643D-04	2. 367D-02	5. 377D-04	-2. 721D-05	-1. 514D-03	
19	-3. 212D-05	-2. 304D-04	-8. 977D-04	3. 813D-04	3. 858D-05	
20	9. 902D-05	-1. 982D-02	8. 882D-05	-1. 506D-03	-1. 381D-05	
21	6. 643D-04	7. 918D-03	6. 004D-04	-1. 270D-05	-1. 514D-03	
22	2. 333D-05	1. 409D-04	-9. 020D-04	-3. 720D-04	3. 383D-05	
23	9. 905D-05	-1. 982D-02	8. 897D-05	-1. 506D-03	-1. 440D-05	
24	6. 643D-04	-7. 831D-03	6. 631D-04	1. 814D-06	-1. 514D-03	
25	8. 175D-05	5. 287D-04	-8. 184D-04	-1. 118D-03	-1. 374D-05	
26	9. 872D-05	-1. 670D-02	7. 629D-05	-1. 491D-03	-1. 323D-05	
27	6. 643D-04	-2. 358D-02	7. 258D-04	1. 633D-05	-1. 514D-03	
28	-1. 048D-04	-7. 940D-04	-6. 051D-04	1. 494D-03	-9. 617D-05	
29	1. 461D-04	-9. 406D-03	4. 580D-05	-2. 108D-03	-1. 710D-05	
30	6. 658D-04	3. 156D-02	8. 246D-04	-3. 723D-05	-1. 516D-03	
31	-5. 439D-05	-4. 164D-04	-7. 430D-04	7. 504D-04	-3. 316D-05	
32	1. 464D-04	-1. 408D-02	6. 374D-05	-2. 126D-03	-1. 706D-05	
33	6. 658D-04	1. 581D-02	8. 873D-04	-2. 271D-05	-1. 517D-03	
34	-6. 659D-07	-3. 808D-05	-7. 919D-04	3. 681D-06	-1. 515D-05	
35	1. 466D-04	-1. 564D-02	6. 985D-05	-2. 133D-03	-1. 747D-05	
36	6. 658D-04	6. 540D-05	9. 500D-04	-8. 204D-06	-1. 517D-03	
37	5. 631D-05	3. 457D-04	-7. 519D-04	-7. 439D-04	-4. 234D-05	

ROW \ COL	7	8	9	10	11
38	1. 465D-04	-1. 408D-02	6. 367D-05	-2. 126D-03	-1. 744D-05
39	6. 658D-04	-1. 568D-02	1. 013D-03	6. 306D-06	-1. 517D-03
40	1. 165D-04	7. 397D-04	-6. 231D-04	-1. 490D-03	-1. 144D-04
41	1. 461D-04	-9. 406D-03	4. 479D-05	-2. 108D-03	-1. 619D-05
42	6. 658D-04	-3. 143D-02	1. 075D-03	2. 082D-05	-1. 517D-03
43	-7. 307D-05	-5. 980D-04	-4. 982D-04	1. 121D-03	-1. 551D-04
44	1. 937D-04	-5. 234D-03	2. 660D-05	-2. 738D-03	-2. 062D-05
45	6. 673D-04	2. 371D-02	1. 174D-03	-3. 273D-05	-1. 519D-03
46	-2. 103D-05	-2. 181D-04	-5. 917D-04	3. 753D-04	-1. 141D-04
47	1. 939D-04	-8. 351D-03	3. 861D-05	-2. 750D-03	-2. 059D-05
48	6. 673D-04	7. 962D-03	1. 237D-03	-1. 822D-05	-1. 519D-03
49	3. 432D-05	1. 662D-04	-5. 962D-04	-3. 714D-04	-1. 186D-04
50	1. 939D-04	-8. 351D-03	3. 851D-05	-2. 750D-03	-2. 036D-05
51	6. 673D-04	-7. 787D-03	1. 300D-03	-3. 712D-06	-1. 519D-03
52	9. 294D-05	5. 570D-04	-5. 117D-04	-1. 118D-03	-1. 688D-04
53	1. 936D-04	-5. 234D-03	2. 599D-05	-2. 738D-03	-1. 953D-05
54	6. 673D-04	-2. 354D-02	1. 362D-03	1. 080D-05	-1. 519D-03
55	-3. 788D-05	-3. 952D-04	-3. 026D-04	7. 461D-04	-2. 617D-04
56	2. 411D-04	2. 042D-03	-4. 707D-06	-3. 356D-03	-2. 382D-05
57	6. 688D-04	1. 586D-02	1. 524D-03	-2. 824D-05	-1. 522D-03
58	1. 582D-05	-1. 106D-05	-3. 515D-04	-1. 920D-07	-2. 436D-04
59	2. 412D-04	4. 898D-04	1. 192D-06	-3. 362D-03	-2. 332D-05
60	6. 688D-04	1. 092D-04	1. 586D-03	-1. 373D-05	-1. 522D-03
61	7. 281D-05	3. 785D-04	-3. 117D-04	-7. 473D-04	-2. 708D-04
62	2. 410D-04	2. 042D-03	-5. 123D-06	-3. 356D-03	-2. 243D-05
63	6. 688D-04	-1. 564D-02	1. 649D-03	7. 797D-07	-1. 522D-03



YNACON

APPENDIX C

MSAT DYNAMICS MODEL

MARK II

(DESIGN MODEL: $N_e = 4$)

System Matrices

$$\omega_\alpha, \quad \alpha = 1, \dots, 4$$

$$\underline{E} = \begin{bmatrix} \underline{E}_r & \underline{E}_{re} \\ \underline{O} & \underline{E}_e \end{bmatrix}$$

$$\hat{\underline{d}}_e$$

$$\hat{\underline{G}}_1, \hat{\underline{G}}_2, \hat{\underline{G}}_3, \hat{\underline{G}}_4$$

$$\hat{\underline{B}} = \begin{bmatrix} \hat{\underline{B}}_r \\ \hat{\underline{B}}_{er} \end{bmatrix} \equiv \begin{bmatrix} \underline{E}_r^T \\ \underline{E}_{re}^T \end{bmatrix}$$

*** RETAINED FREQUENCIES ***

SELECTED MODES	(RAD/SEC)	FREQUENCY (HZ)
1	0.000000000000000D+00	0.000000000000000D+00
2	0.000000000000000D+00	0.000000000000000D+00
3	0.000000000000000D+00	0.000000000000000D+00
4	0.000000000000000D+00	0.000000000000000D+00
5	0.000000000000000D+00	0.000000000000000D+00
6	0.000000000000000D+00	0.000000000000000D+00
7	1.1113409642589810D+00	1.7687540792233020D-01
8	1.1687769803231770D+00	1.8601663379045260D-01
9	1.4694201010176340D+00	2.3386547255554860D-01
10	1.6426366252757590D+00	2.6143373861642630D-01

*** RETAINED EIGENVECTORS ***

ROW \ COL	1	2	3	4	5	6
51	0. 000D+00					
52	0. 000D+00					
53	0. 000D+00					
54	0. 000D+00					
55	0. 000D+00					
56	0. 000D+00					
57	0. 000D+00					
58	0. 000D+00					
59	0. 000D+00					
60	0. 000D+00					
61	0. 000D+00					
62	0. 000D+00					
63	0. 000D+00					
64	0. 000D+00					
65	0. 000D+00					
66	0. 000D+00					
67	0. 000D+00					
68	0. 000D+00					
69	0. 000D+00					
70	0. 000D+00					
71	0. 000D+00					
72	0. 000D+00					

ROW \ COL	7	8	9	10
1	5. 706D-03	6. 129D-06	-2. 651D-05	1. 585D-04
2	-2. 243D-04	1. 038D-06	2. 201D-04	1. 356D-02
3	9. 308D-07	-6. 144D-03	1. 402D-04	-2. 371D-06
4	-1. 213D-04	1. 014D-07	1. 296D-04	9. 836D-03
5	3. 047D-04	-5. 001D-06	2. 140D-05	-4. 401D-05
6	1. 099D-07	-1. 635D-04	-7. 585D-03	1. 907D-04
7	-7. 239D-01	-8. 952D-02	-9. 401D-01	1. 065D-01
8	-5. 678D-02	7. 205D-01	-1. 232D-01	-1. 004D+00
9	1. 734D-03	9. 702D-04	8. 551D-02	-2. 777D-02
10	1. 887D-04	3. 786D-04	-5. 484D-04	-3. 845D-02
11	-5. 900D-05	-1. 232D-05	-9. 089D-04	6. 682D-05
12	1. 390D-05	1. 564D-04	-3. 955D-05	-2. 538D-03
13	-1. 393D-05	-3. 592D-06	-2. 028D-04	4. 496D-05
14	5. 286D-07	-7. 585D-06	-6. 994D-07	-8. 945D-05
15	2. 936D-06	3. 467D-07	2. 031D-05	-3. 017D-06
16	1. 550D-06	-1. 077D-07	1. 887D-05	1. 843D-06
17	-4. 828D-07	-8. 594D-06	9. 503D-07	7. 961D-05
18	1. 053D-07	1. 293D-06	9. 396D-07	3. 082D-06
19	2. 909D-06	1. 976D-07	2. 216D-05	-1. 508D-06
20	-2. 230D-06	-3. 279D-07	-8. 474D-06	1. 500D-06
21	1. 079D-07	-1. 503D-06	8. 688D-07	1. 023D-05
22	7. 241D-01	-8. 972D-02	-9. 428D-01	-6. 825D-02
23	5. 698D-02	7. 207D-01	-8. 868D-02	1. 009D+00
24	-1. 734D-03	9. 414D-04	8. 610D-02	1. 739D-02
25	-1. 888D-04	3. 790D-04	2. 289D-04	3. 846D-02
26	5. 902D-05	-1. 206D-05	-9. 117D-04	-8. 924D-06
27	-1. 394D-05	1. 564D-04	1. 353D-05	2. 539D-03
28	1. 393D-05	-3. 418D-06	-2. 048D-04	-3. 210D-05

ROW \ COL	7	8	9	10
29	-5.265D-07	-7.584D-06	1.171D-06	8.944D-05
30	-2.936D-06	3.141D-07	2.060D-05	1.730D-06
31	-1.550D-06	-1.001D-07	1.877D-05	-3.026D-06
32	4.851D-07	-8.595D-06	-7.275D-07	-7.961D-05
33	-1.057D-07	1.292D-06	8.782D-07	-3.140D-06
34	-2.909D-06	1.905D-07	2.224D-05	1.120D-07
35	2.231D-06	-3.298D-07	-8.491D-06	-9.666D-07
36	-1.075D-07	-1.504D-06	6.550D-07	-1.027D-05
37	6.750D-06	5.154D-05	3.783D-03	-1.026D-03
38	8.027D-05	1.544D-04	1.449D-06	-1.722D-05
39	-2.162D-06	-9.955D-07	-6.922D-05	3.781D-04
40	4.648D-06	-2.301D-06	-5.316D-08	5.652D-07
41	1.039D-07	8.095D-08	5.772D-06	-1.631D-05
42	8.067D-07	6.908D-07	-3.107D-08	4.843D-08
43	9.867D-09	9.168D-09	6.573D-07	-1.491D-06
44	6.395D-08	5.682D-08	-2.283D-09	3.108D-09
45	-4.916D-09	6.872D-08	-1.448D-09	-3.108D-09
46	-1.465D-09	-1.350D-09	-9.667D-08	2.306D-07
47	-3.985D-08	-4.261D-08	1.796D-09	-2.269D-09
48	2.153D-09	1.470D-09	1.044D-07	-3.398D-07
49	2.126D-09	1.855D-09	1.328D-07	-3.253D-07
50	2.228D-08	1.135D-09	-5.069D-10	2.179D-09
51	-7.917D-09	-4.237D-09	2.267D-10	-5.123D-10
52	9.722D-09	-7.597D-09	-1.401D-11	1.189D-09
53	-5.750D-10	-4.039D-10	-2.872D-08	8.937D-08
54	8.368D-09	1.282D-08	-4.749D-10	3.588D-10
55	-6.813D-06	5.161D-05	3.806D-03	7.873D-04
56	-8.032D-05	1.564D-04	-1.269D-05	1.746D-05
57	2.163D-06	-1.001D-06	-7.726D-05	-3.735D-04
58	-4.647D-06	-2.341D-06	2.206D-07	-5.687D-07
59	-1.040D-07	8.157D-08	6.145D-06	1.593D-05
60	-8.069D-07	6.890D-07	-1.872D-08	-4.738D-08
61	-9.878D-09	9.238D-09	6.923D-07	1.449D-06
62	-6.396D-08	5.675D-08	-1.811D-09	-3.021D-09
63	4.897D-09	6.902D-08	-3.520D-09	3.213D-09
64	1.466D-09	-1.359D-09	-1.019D-07	-2.244D-07
65	3.986D-08	-4.253D-08	1.275D-09	2.204D-09
66	-2.155D-09	1.483D-09	1.121D-07	3.330D-07
67	-2.128D-09	1.869D-09	1.403D-07	3.167D-07
68	-2.228D-08	9.968D-10	4.301D-10	-2.177D-09
69	7.918D-09	-4.215D-09	7.812D-11	5.059D-10
70	-9.720D-09	-7.682D-09	5.651D-10	-1.201D-09
71	5.755D-10	-4.075D-10	-3.078D-08	-8.750D-08
72	-8.371D-09	1.281D-08	-4.495D-10	-3.392D-10

*** RETAINED MODAL DAMPING MATRIX ***

ROW \ COL	1	2	3	4
1	1.141D-02	-9.275D-08	-1.145D-06	-6.654D-05
2	-9.275D-08	1.200D-02	8.935D-05	-1.723D-06
3	-1.145D-06	8.935D-05	1.971D-02	-1.141D-05
4	-6.654D-05	-1.723D-06	-1.141D-05	2.339D-02

*** RETAINED MODAL ANGULAR MOMENTUM MATRIX FOR 1-AXIS ***

ROW \ COL	1	2	3	4	5	6
1	0. 000D+00					
2	0. 000D+00					
3	0. 000D+00					
4	0. 000D+00					
5	0. 000D+00	8. 969D-05				
6	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	-8. 969D-05	0. 000D+00
7	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	-1. 169D-09	2. 567D-06
8	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	1. 740D-06	-4. 613D-08
9	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	8. 073D-05	-4. 578D-09
10	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	-2. 029D-06	-3. 662D-07
ROW \ COL	7	8	9	10		
1	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00		
2	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00		
3	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00		
4	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00		
5	1. 169D-09	-1. 740D-06	-8. 073D-05	2. 029D-06		
6	-2. 567D-06	4. 613D-08	4. 578D-09	3. 662D-07		
7	0. 000D+00	-4. 982D-08	-2. 311D-06	5. 810D-08		
8	4. 982D-08	0. 000D+00	4. 144D-08	-8. 150D-09		
9	2. 311D-06	-4. 144D-08	0. 000D+00	-3. 297D-07		
10	-5. 810D-08	8. 150D-09	3. 297D-07	0. 000D+00		

*** RETAINED MODAL ANGULAR MOMENTUM MATRIX FOR 2-AXIS ***

ROW \ COL	1	2	3	4	5	6
1	0. 000D+00					
2	0. 000D+00					
3	0. 000D+00					
4	0. 000D+00	-8. 105D-05				
5	0. 000D+00	6. 475D-08				
6	0. 000D+00	0. 000D+00	0. 000D+00	8. 105D-05	-6. 475D-08	0. 000D+00
7	0. 000D+00	0. 000D+00	0. 000D+00	1. 056D-09	-8. 440D-13	1. 022D-06
8	0. 000D+00	0. 000D+00	0. 000D+00	-1. 573D-06	1. 256D-09	-8. 086D-09
9	0. 000D+00	0. 000D+00	0. 000D+00	-7. 295D-05	5. 828D-08	-1. 428D-06
10	0. 000D+00	0. 000D+00	0. 000D+00	1. 834D-06	-1. 465D-09	-8. 288D-05
ROW \ COL	7	8	9	10		
1	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00		
2	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00		
3	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00		
4	-1. 056D-09	1. 573D-06	7. 295D-05	-1. 834D-06		
5	8. 440D-13	-1. 256D-09	-5. 828D-08	1. 465D-09		
6	-1. 022D-06	8. 086D-09	1. 428D-06	8. 288D-05		
7	0. 000D+00	-1. 983D-08	-9. 197D-07	2. 420D-08		
8	1. 983D-08	0. 000D+00	-2. 043D-08	-1. 608D-06		
9	9. 197D-07	2. 043D-08	0. 000D+00	-7. 463D-05		
10	-2. 420D-08	1. 608D-06	7. 463D-05	0. 000D+00		

*** RETAINED MODAL ANGULAR MOMENTUM MATRIX FOR 3-AXIS ***

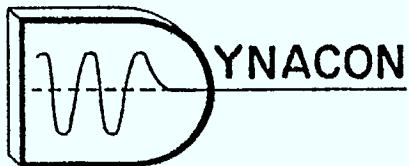
ROW \ COL	1	2	3	4	5	6
1	0. 000D+00					
2	0. 000D+00					
3	0. 000D+00					
4	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	1. 024D-04	-2. 345D-07
5	0. 000D+00	0. 000D+00	0. 000D+00	-1. 024D-04	0. 000D+00	-4. 705D-07
6	0. 000D+00	0. 000D+00	0. 000D+00	2. 345D-07	4. 705D-07	0. 000D+00
7	0. 000D+00	0. 000D+00	0. 000D+00	-2. 930D-06	-1. 288D-06	-1. 052D-08
8	0. 000D+00	0. 000D+00	0. 000D+00	4. 810D-08	1. 041D-09	2. 187D-10
9	0. 000D+00	0. 000D+00	0. 000D+00	-2. 058D-07	1. 380D-06	-4. 107D-09
10	0. 000D+00	0. 000D+00	0. 000D+00	4. 232D-07	1. 047D-04	-2. 378D-07
ROW \ COL	7	8	9	10		
1	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00		
2	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00		
3	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00		
4	2. 930D-06	-4. 810D-08	2. 058D-07	-4. 232D-07		
5	1. 288D-06	-1. 041D-09	-1. 380D-06	-1. 047D-04		
6	1. 052D-08	-2. 187D-10	4. 107D-09	2. 378D-07		
7	0. 000D+00	5. 755D-10	-4. 209D-08	-2. 991D-06		
8	-5. 755D-10	0. 000D+00	6. 505D-10	4. 919D-08		
9	4. 209D-08	-6. 505D-10	0. 000D+00	-2. 162D-07		
10	2. 991D-06	-4. 919D-08	2. 162D-07	0. 000D+00		

*** RETAINED MODAL ANGULAR MOMENTUM MATRIX FOR 4-AXIS ***

ROW \ COL	1	2	3	4	5	6
1	0. 000D+00					
2	0. 000D+00					
3	0. 000D+00					
4	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	5. 909D-05	-4. 693D-05
5	0. 000D+00	0. 000D+00	0. 000D+00	-5. 909D-05	-1. 654D-24	5. 155D-05
6	0. 000D+00	0. 000D+00	0. 000D+00	4. 693D-05	-5. 155D-05	0. 000D+00
7	0. 000D+00	0. 000D+00	0. 000D+00	-1. 691D-06	-7. 444D-07	2. 066D-06
8	0. 000D+00	0. 000D+00	0. 000D+00	-8. 802D-07	1. 006D-06	-3. 118D-08
9	0. 000D+00	0. 000D+00	0. 000D+00	-4. 224D-05	4. 744D-05	-8. 294D-07
10	0. 000D+00	0. 000D+00	0. 000D+00	1. 303D-06	5. 926D-05	-4. 820D-05
ROW \ COL	7	8	9	10		
1	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00		
2	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00		
3	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00		
4	1. 691D-06	8. 802D-07	4. 224D-05	-1. 303D-06		
5	7. 444D-07	-1. 006D-06	-4. 744D-05	5. 926D-05		
6	-2. 066D-06	3. 118D-08	8. 294D-07	4. 820D-05		
7	6. 785D-25	-3. 988D-08	-1. 890D-06	-1. 679D-06		
8	3. 988D-08	0. 000D+00	1. 250D-08	-9. 049D-07		
9	1. 890D-06	-1. 250D-08	-6. 617D-23	-4. 340D-05		
10	1. 679D-06	9. 049D-07	4. 340D-05	0. 000D+00		

*** RETAINED MODAL CONTROL DISTRIBUTION MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	2. 641D-02	0. 000D+00				
2	0. 000D+00	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00
3	0. 000D+00	0. 000D+00	2. 641D-02	0. 000D+00	0. 000D+00	0. 000D+00
4	0. 000D+00	1. 332D-02	-1. 668D-19	9. 617D-03	0. 000D+00	0. 000D+00
5	-1. 474D-02	-1. 064D-05	5. 822D-05	-7. 683D-06	1. 064D-02	0. 000D+00
6	3. 376D-05	1. 513D-05	-1. 334D-07	4. 422D-05	-2. 438D-05	8. 427D-03
7	5. 706D-03	-2. 243D-04	9. 308D-07	-1. 213D-04	3. 047D-04	1. 099D-07
8	6. 129D-06	1. 038D-06	-6. 144D-03	1. 014D-07	-5. 001D-06	-1. 635D-04
9	-2. 651D-05	2. 201D-04	1. 402D-04	1. 296D-04	2. 140D-05	-7. 585D-03
10	1. 585D-04	1. 356D-02	-2. 371D-06	9. 836D-03	-4. 401D-05	1. 907D-04



MSAT DYNAMICS MODEL

MARK II

(DESIGN MODEL: $N_e = 4$)

Transfer Function Matrices

\underline{I}

\underline{I}^{-1}

\underline{r}_c

$-\underline{I}^{-1}\underline{r}_c^x$

$$\begin{bmatrix} \omega_\alpha \\ \zeta_\alpha \\ \underline{e}_{w\alpha}^T & \underline{e}_{\theta\alpha}^T \\ K_{f\alpha} & K_{g\alpha} \end{bmatrix}, \quad \alpha = 1, \dots, 4$$

INERTIA MATRIX I

1. 081D+04	7. 805D+00	-5. 671D+01
7. 805D+00	8. 829D+03	2. 550D+01
-5. 671D+01	2. 550D+01	1. 408D+04

INVERSE OF INERTIA MATRIX I

9. 249D-05	-8. 285D-08	3. 727D-07
-8. 285D-08	1. 133D-04	-2. 055D-07
3. 727D-07	-2. 055D-07	7. 102D-05

RC - POSITION OF MASS CENTER RELATIVE TO OB

5. 471D-03	0. 000D+00	1. 385D+00
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THE MATRIX PRODUCT -(I**-1)(RC**X)

1. 147D-07	1. 281D-04	-4. 532D-10
-1. 568D-04	-1. 136D-07	6. 197D-07
2. 845D-07	1. 275D-07	-1. 124D-09

FLEXIBLE MODE: ALPHA = 1

OMEGA₁ = 1.111D+00 RAD/SEC

ZETA₁ = 5.135D-03

T E W1	T E THETA1
5.706D-03 -2.243D-04 9.308D-07	-1.213D-04 3.047D-04 1.099D-07
K F1	K G1
-6.919D-07 2.720D-08 -1.129D-10	1.470D-08 -3.694D-08 -1.332D-11
1.738D-06 -6.834D-08 2.836D-10	-3.694D-08 9.282D-08 3.347D-11
6.268D-10 -2.464D-11 1.023D-13	-1.332D-11 3.347D-11 1.207D-14

FLEXIBLE MODE: ALPHA = 2

OMEGA₂ = 1.169D+00 RAD/SEC

ZETA₂ = 5.134D-03

T
E
W2

6.129D-06 1.038D-06 -6.144D-03

T
E
THETA2

1.014D-07 -5.001D-06 -1.635D-04

K
F2

6.217D-13 1.053D-13 -6.233D-10
-3.065D-11 -5.190D-12 3.073D-08
-1.002D-09 -1.697D-10 1.005D-06

K
G2

1.029D-14 -5.074D-13 -1.659D-11
-5.074D-13 2.501D-11 8.178D-10
-1.659D-11 8.178D-10 2.674D-08

FLEXIBLE MODE: ALPHA = 3

OMEGA = 1.469D+00 RAD/SEC
3

ZETA = 6.707D-03
3

T E W3	T E THETA3
-2.651D-05 2.201D-04 1.402D-04	1.296D-04 2.140D-05 -7.585D-03
K F3	K G3
-3.437D-09 2.853D-08 1.817D-08	1.681D-08 2.774D-09 -9.834D-07
-5.674D-10 4.710D-09 3.000D-09	2.774D-09 4.580D-10 -1.623D-07
2.011D-07 -1.669D-06 -1.063D-06	-9.834D-07 -1.623D-07 5.754D-05

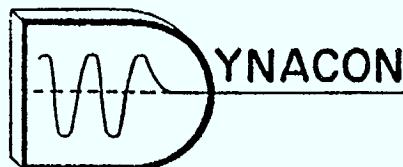
FLEXIBLE MODE: ALPHA = 4

OMEGA₄ = 1.643D+00 RAD/SEC

ZETA₄ = 7.119D-03

T E W4	T E THETA4
1.585D-04 1.356D-02 -2.371D-06	9.836D-03 -4.401D-05 1.907D-04

K F4	K G4
1.559D-06 1.334D-04 -2.332D-08 -6.975D-09 -5.969D-07 1.043D-10 3.022D-08 2.586D-06 -4.520D-10	9.674D-05 -4.328D-07 1.875D-06 -4.328D-07 1.937D-09 -8.391D-09 1.875D-06 -8.391D-09 3.636D-08



APPENDIX E

MSAT DYNAMICS MODEL

MARK II

(EVALUATION MODEL: $N_e = 11$)

System Matrices

$$\omega_\alpha, \quad \alpha = 1, \dots, 11$$

$$\underline{E} = \begin{bmatrix} \underline{E}_r & \underline{E}_{re} \\ \underline{O} & \underline{E}_e \end{bmatrix}$$

$$\hat{\underline{v}}_e$$

$$\hat{\underline{G}}_1, \hat{\underline{G}}_2, \hat{\underline{G}}_3, \hat{\underline{G}}_4$$

$$\hat{\underline{B}} = \begin{bmatrix} \hat{\underline{B}}_r \\ \hat{\underline{B}}_{er} \end{bmatrix} = \begin{bmatrix} \underline{E}_r^T \\ \underline{E}_{re}^T \end{bmatrix}$$

*** RETAINED FREQUENCIES ***

SELECTED MODES	FREQUENCY (RAD/SEC)	FREQUENCY (HZ)
1	0. 000000000000000D+00	0. 000000000000000D+00
2	0. 000000000000000D+00	0. 000000000000000D+00
3	0. 000000000000000D+00	0. 000000000000000D+00
4	0. 000000000000000D+00	0. 000000000000000D+00
5	0. 000000000000000D+00	0. 000000000000000D+00
6	0. 000000000000000D+00	0. 000000000000000D+00
7	1. 1113409642589810D+00	1. 7687540792233020D-01
8	1. 1687769803231770D+00	1. 8601663379045260D-01
9	1. 4694201010176340D+00	2. 3386547255554860D-01
10	1. 6426366252757590D+00	2. 6143373861642630D-01
11	1. 8154083665203980D+00	2. 8893121526210460D-01
12	1. 8264176228475520D+00	2. 9068339282633680D-01
13	3. 9203705839804750D+00	6. 2394635719255280D-01
14	4. 2323984958844680D+00	6. 7360714175471580D-01
15	6. 7922663369634580D+00	1. 0810227623244160D+00
16	6. 7955211057012750D+00	1. 0815407748576600D+00
17	8. 9732676215017940D+00	1. 4281398976484650D+00

*** RETAINED EIGENVECTORS ***

ROW \ COL	1	2	3	4	5	6
51	0. 000D+00					
52	0. 000D+00					
53	0. 000D+00					
54	0. 000D+00					
55	0. 000D+00					
56	0. 000D+00					
57	0. 000D+00					
58	0. 000D+00					
59	0. 000D+00					
60	0. 000D+00					
61	0. 000D+00					
62	0. 000D+00					
63	0. 000D+00					
64	0. 000D+00					
65	0. 000D+00					
66	0. 000D+00					
67	0. 000D+00					
68	0. 000D+00					
69	0. 000D+00					
70	0. 000D+00					
71	0. 000D+00					
72	0. 000D+00					

ROW \ COL	7	8	9	10	11	12
1	5. 706D-03	6. 129D-06	-2. 651D-05	1. 585D-04	1. 608D-03	6. 339D-06
2	-2. 243D-04	1. 038D-06	2. 201D-04	1. 356D-02	-6. 239D-04	8. 327D-05
3	9. 308D-07	-6. 144D-03	1. 402D-04	-2. 371D-06	-3. 851D-06	5. 599D-05
4	-1. 213D-04	1. 014D-07	1. 296D-04	9. 836D-03	-4. 455D-04	6. 833D-05
5	3. 047D-04	-5. 001D-06	2. 140D-05	-4. 401D-05	-6. 600D-04	-5. 079D-06
6	1. 099D-07	-1. 635D-04	-7. 585D-03	1. 907D-04	8. 768D-07	2. 018D-03
7	-7. 239D-01	-8. 952D-02	-9. 401D-01	1. 065D-01	-8. 034D-03	1. 773D-01
8	-5. 678D-02	7. 205D-01	-1. 232D-01	-1. 004D+00	3. 853D-02	1. 155D-02
9	1. 734D-03	9. 702D-04	8. 551D-02	-2. 777D-02	-7. 074D-01	7. 059D-01
10	1. 887D-04	3. 786D-04	-5. 484D-04	-3. 845D-02	2. 229D-03	-2. 923D-04
11	-5. 900D-05	-1. 232D-05	-9. 089D-04	6. 682D-05	-7. 059D-05	3. 844D-04
12	1. 390D-05	1. 564D-04	-3. 955D-05	-2. 538D-03	1. 408D-04	-2. 253D-05
13	-1. 393D-05	-3. 592D-06	-2. 028D-04	4. 496D-05	-3. 714D-05	8. 464D-05
14	5. 286D-07	-7. 585D-06	-6. 994D-07	-8. 945D-05	4. 912D-06	-5. 868D-07
15	2. 936D-06	3. 467D-07	2. 031D-05	-3. 017D-06	6. 738D-06	-8. 417D-06
16	1. 550D-06	-1. 077D-07	1. 887D-05	1. 843D-06	-8. 795D-07	-7. 726D-06
17	-4. 828D-07	-8. 594D-06	9. 503D-07	7. 961D-05	-4. 488D-06	9. 583D-07
18	1. 053D-07	1. 293D-06	9. 396D-07	3. 082D-06	-7. 063D-08	-3. 942D-07
19	2. 909D-06	1. 976D-07	2. 216D-05	-1. 508D-06	2. 289D-06	-9. 131D-06
20	-2. 230D-06	-3. 279D-07	-8. 474D-06	1. 500D-06	-5. 407D-07	3. 507D-06
21	1. 079D-07	-1. 503D-06	8. 688D-07	1. 023D-05	-4. 435D-07	-1. 687D-07
22	7. 241D-01	-8. 972D-02	-9. 428D-01	-6. 825D-02	8. 182D-03	1. 762D-01
23	5. 698D-02	7. 207D-01	-8. 868D-02	1. 009D+00	-3. 843D-02	2. 343D-02
24	-1. 734D-03	9. 414D-04	8. 610D-02	1. 739D-02	7. 094D-01	7. 042D-01
25	-1. 888D-04	3. 790D-04	2. 289D-04	3. 846D-02	-2. 228D-03	4. 036D-04
26	5. 902D-05	-1. 206D-05	-9. 117D-04	-8. 924D-06	7. 092D-05	3. 844D-04
27	-1. 394D-05	1. 564D-04	1. 353D-05	2. 539D-03	-1. 404D-04	2. 148D-05
28	1. 393D-05	-3. 418D-06	-2. 048D-04	-3. 210D-05	3. 721D-05	8. 438D-05

ROW \ COL	7	8	9	10	11	12
29	-5. 265D-07	-7. 584D-06	1. 171D-06	8. 944D-05	-4. 935D-06	9. 585D-07
30	-2. 936D-06	3. 141D-07	2. 060D-05	1. 730D-06	-6. 745D-06	-8. 453D-06
31	-1. 550D-06	-1. 001D-07	1. 877D-05	-3. 026D-06	8. 717D-07	-7. 750D-06
32	4. 851D-07	-8. 595D-06	-7. 275D-07	-7. 961D-05	4. 462D-06	-4. 109D-07
33	-1. 057D-07	1. 292D-06	8. 782D-07	-3. 140D-06	7. 417D-08	-4. 491D-07
34	-2. 909D-06	1. 905D-07	2. 224D-05	1. 120D-07	-2. 297D-06	-9. 134D-06
35	2. 231D-06	-3. 298D-07	-8. 491D-06	-9. 666D-07	5. 431D-07	3. 481D-06
36	-1. 075D-07	-1. 504D-06	6. 550D-07	-1. 027D-05	4. 386D-07	-3. 454D-07
37	6. 750D-06	5. 154D-05	3. 783D-03	-1. 026D-03	5. 039D-05	-1. 574D-03
38	8. 027D-05	1. 544D-04	1. 449D-06	-1. 722D-05	-3. 257D-04	-6. 080D-06
39	-2. 162D-06	-9. 955D-07	-6. 922D-05	3. 781D-04	-2. 081D-05	3. 333D-05
40	4. 648D-06	-2. 301D-06	-5. 316D-08	5. 652D-07	8. 438D-06	1. 020D-07
41	1. 039D-07	8. 095D-08	5. 772D-06	-1. 631D-05	8. 966D-07	-2. 581D-06
42	8. 067D-07	6. 908D-07	-3. 107D-08	4. 843D-08	5. 889D-07	-1. 307D-08
43	9. 867D-09	9. 168D-09	6. 573D-07	-1. 491D-06	8. 191D-08	-2. 891D-07
44	6. 395D-08	5. 682D-08	-2. 283D-09	3. 108D-09	3. 404D-08	-1. 176D-09
45	-4. 916D-09	6. 872D-08	-1. 448D-09	-3. 108D-09	-5. 328D-08	-1. 913D-09
46	-1. 465D-09	-1. 350D-09	-9. 667D-08	2. 306D-07	-1. 265D-08	4. 267D-08
47	-3. 985D-08	-4. 261D-08	1. 796D-09	-2. 269D-09	-2. 687D-08	8. 509D-10
48	2. 153D-09	1. 470D-09	1. 044D-07	-3. 398D-07	1. 870D-08	-4. 724D-08
49	2. 126D-09	1. 855D-09	1. 328D-07	-3. 253D-07	1. 788D-08	-5. 871D-08
50	2. 228D-08	1. 135D-09	-5. 069D-10	2. 179D-09	3. 110D-08	1. 486D-10
51	-7. 917D-09	-4. 237D-09	2. 267D-10	-5. 123D-10	-6. 459D-09	6. 663D-11
52	9. 722D-09	-7. 597D-09	-1. 401D-11	1. 189D-09	1. 781D-08	2. 764D-10
53	-5. 750D-10	-4. 039D-10	-2. 872D-08	8. 937D-08	-4. 921D-09	1. 295D-08
54	8. 368D-09	1. 282D-08	-4. 749D-10	3. 588D-10	3. 555D-09	-2. 804D-10
55	-6. 813D-06	5. 161D-05	3. 806D-03	7. 873D-04	-5. 174D-05	-1. 561D-03
56	-8. 032D-05	1. 564D-04	-1. 269D-05	1. 746D-05	3. 262D-04	-8. 785D-07
57	2. 163D-06	-1. 001D-06	-7. 726D-05	-3. 735D-04	2. 083D-05	2. 692D-05
58	-4. 647D-06	-2. 341D-06	2. 206D-07	-5. 687D-07	-8. 445D-06	1. 358D-09
59	-1. 040D-07	8. 157D-08	6. 145D-06	1. 593D-05	-8. 987D-07	-2. 317D-06
60	-8. 069D-07	6. 890D-07	-1. 872D-08	-4. 738D-08	-5. 868D-07	-1. 763D-08
61	-9. 878D-09	9. 238D-09	6. 923D-07	1. 449D-06	-8. 215D-08	-2. 655D-07
62	-6. 396D-08	5. 675D-08	-1. 811D-09	-3. 021D-09	-3. 387D-08	-1. 352D-09
63	4. 897D-09	6. 902D-08	-3. 520D-09	3. 213D-09	5. 349D-08	-1. 152D-09
64	1. 466D-09	-1. 359D-09	-1. 019D-07	-2. 244D-07	1. 269D-08	3. 895D-08
65	3. 986D-08	-4. 253D-08	1. 275D-09	2. 204D-09	2. 674D-08	1. 044D-09
66	-2. 155D-09	1. 483D-09	1. 121D-07	3. 330D-07	-1. 874D-08	-4. 173D-08
67	-2. 128D-09	1. 869D-09	1. 403D-07	3. 167D-07	-1. 792D-08	-5. 352D-08
68	-2. 228D-08	9. 968D-10	4. 301D-10	-2. 177D-09	-3. 110D-08	-1. 960D-10
69	7. 918D-09	-4. 215D-09	7. 812D-11	5. 059D-10	6. 446D-09	1. 215D-10
70	-9. 720D-09	-7. 682D-09	5. 651D-10	-1. 201D-09	-1. 783D-08	6. 360D-11
71	5. 755D-10	-4. 075D-10	-3. 078D-08	-8. 750D-08	4. 932D-09	1. 151D-08
72	-8. 371D-09	1. 281D-08	-4. 495D-10	-3. 392D-10	-3. 516D-09	-2. 900D-10

ROW \ COL	13	14	15	16	17
1	-8. 779D-07	-2. 473D-05	-6. 005D-04	2. 034D-06	1. 605D-06
2	1. 232D-07	-8. 037D-03	4. 493D-05	5. 230D-06	-4. 396D-08
3	6. 614D-04	8. 384D-08	7. 828D-07	3. 827D-08	-1. 509D-03
4	1. 896D-09	-5. 876D-03	2. 339D-05	5. 414D-06	-1. 458D-08
5	6. 391D-07	9. 439D-06	1. 372D-04	-1. 191D-06	-1. 152D-06
6	-2. 257D-05	-4. 461D-05	1. 121D-07	3. 966D-04	4. 728D-06

ROW \ COL	13	14	15	16	17
7	-9.763D-04	-3.461D-02	2.407D-03	2.317D-02	-6.111D-04
8	-4.499D-03	3.363D-01	-1.052D-03	1.933D-03	9.291D-03
9	-1.133D-04	-4.002D-03	9.210D-04	2.504D-03	-7.304D-05
10	7.074D-01	-7.564D-01	6.339D-04	7.951D-05	-1.184D-03
11	-2.728D-05	-3.216D-04	-7.079D-01	-7.068D-01	-2.464D-05
12	-2.306D-04	1.252D-02	-2.287D-04	-3.591D-05	-7.082D-01
13	-3.636D-06	-1.901D-04	1.965D-04	3.362D-04	-1.719D-05
14	9.657D-06	3.749D-04	-4.142D-06	-9.507D-07	-1.518D-04
15	3.587D-07	1.206D-05	-2.898D-05	-2.586D-05	6.483D-07
16	8.605D-07	-9.000D-06	2.287D-08	-2.282D-05	-6.629D-06
17	1.065D-05	-3.242D-04	3.815D-06	1.052D-06	-1.436D-04
18	-1.557D-06	-1.252D-05	-4.110D-07	-1.096D-06	2.052D-05
19	6.057D-07	4.888D-06	-1.231D-05	-2.622D-05	-2.250D-06
20	7.738D-08	-5.511D-06	4.995D-06	9.527D-06	-2.891D-06
21	1.848D-06	-4.061D-05	-2.303D-07	-6.933D-07	-2.198D-05
22	-9.737D-04	2.919D-02	-2.393D-03	2.311D-02	-6.151D-04
23	-4.499D-03	-3.368D-01	1.044D-03	2.525D-03	9.289D-03
24	-1.200D-04	3.361D-03	-9.195D-04	2.509D-03	-6.303D-05
25	7.073D-01	7.565D-01	-6.324D-04	-2.186D-04	-1.184D-03
26	-2.787D-05	1.831D-04	7.066D-01	-7.081D-01	-2.968D-05
27	-2.306D-04	-1.253D-02	2.256D-04	7.319D-05	-7.082D-01
28	-3.925D-06	1.677D-04	-1.963D-04	3.374D-04	-1.135D-05
29	9.657D-06	-3.749D-04	4.219D-06	1.056D-06	-1.518D-04
30	4.092D-07	-9.974D-06	2.896D-05	-2.613D-05	6.121D-08
31	8.498D-07	1.089D-05	-3.239D-08	-2.281D-05	-6.515D-06
32	1.065D-05	3.242D-04	-3.735D-06	-5.675D-07	-1.436D-04
33	-1.556D-06	1.261D-05	3.987D-07	-1.164D-06	2.051D-05
34	6.175D-07	-2.679D-06	1.230D-05	-2.629D-05	-2.373D-06
35	7.914D-08	4.682D-06	-4.988D-06	9.505D-06	-2.906D-06
36	1.849D-06	4.068D-05	2.429D-07	-8.904D-07	-2.198D-05
37	8.526D-05	4.022D-03	-6.456D-05	-5.265D-03	-1.342D-04
38	-1.954D-04	2.646D-05	1.054D-03	-9.730D-06	2.985D-03
39	-1.564D-06	-1.509D-03	1.616D-05	8.804D-05	1.782D-06
40	2.786D-06	-6.810D-07	-3.415D-05	1.842D-07	-3.363D-05
41	1.259D-07	6.405D-05	-7.667D-07	-6.809D-06	-1.379D-07
42	-8.375D-07	-4.951D-08	-3.120D-06	1.018D-08	1.003D-05
43	1.425D-08	5.838D-06	-7.312D-08	-7.666D-07	-1.560D-08
44	-6.885D-08	-2.914D-09	-2.069D-07	4.945D-10	8.234D-07
45	-8.319D-08	4.194D-09	1.769D-07	-1.294D-09	9.952D-07
46	-2.098D-09	-9.043D-07	1.079D-08	1.129D-07	2.294D-09
47	5.162D-08	2.265D-09	1.468D-07	-4.453D-10	-6.170D-07
48	2.286D-09	1.335D-06	-1.584D-08	-1.239D-07	-2.496D-09
49	2.884D-09	1.275D-06	-1.572D-08	-1.553D-07	-3.152D-09
50	-1.395D-09	-2.525D-09	-1.332D-07	6.471D-10	1.642D-08
51	5.136D-09	5.373D-10	3.273D-08	-1.168D-10	-6.135D-08
52	9.189D-09	-1.434D-09	-7.156D-08	3.878D-10	-1.100D-07
53	-6.280D-10	-3.509D-07	4.238D-09	3.399D-08	6.857D-10
54	-1.553D-08	-3.121D-10	-2.420D-08	4.150D-11	1.856D-07
55	8.536D-05	-3.624D-03	6.159D-05	-5.250D-03	-1.345D-04
56	-1.985D-04	-2.652D-05	-1.056D-03	9.656D-06	3.023D-03

ROW \ COL	13	14	15	16	17
57	-1.567D-06	1.502D-03	-1.611D-05	8.087D-05	1.820D-06
58	2.846D-06	6.818D-07	3.417D-05	-1.832D-07	-3.421D-05
59	1.266D-07	-6.347D-05	7.630D-07	-6.543D-06	-1.400D-07
60	-8.345D-07	4.926D-08	3.114D-06	-1.045D-08	1.000D-05
61	1.434D-08	-5.772D-06	7.269D-08	-7.435D-07	-1.581D-08
62	-6.872D-08	2.894D-09	2.064D-07	-5.206D-10	8.222D-07
63	-8.364D-08	-4.218D-09	-1.775D-07	1.265D-09	9.994D-07
64	-2.108D-09	8.946D-07	-1.073D-08	1.092D-07	2.324D-09
65	5.150D-08	-2.250D-09	-1.465D-07	4.629D-10	-6.158D-07
66	2.300D-09	-1.325D-06	1.577D-08	-1.183D-07	-2.539D-09
67	2.901D-09	-1.261D-06	1.563D-08	-1.501D-07	-3.198D-09
68	-1.187D-09	2.525D-09	1.332D-07	-6.476D-10	1.444D-08
69	5.102D-09	-5.358D-10	-3.269D-08	1.186D-10	-6.102D-08
70	9.317D-09	1.437D-09	7.163D-08	-3.846D-10	-1.112D-07
71	-6.322D-10	3.480D-07	-4.219D-09	3.255D-08	6.977D-10
72	-1.552D-08	3.075D-10	2.409D-08	-4.692D-11	1.855D-07

*** RETAINED MODAL DAMPING MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	1. 141D-02	-9. 275D-08	-1. 145D-06	-6. 654D-05	3. 268D-05	-4. 246D-07
2	-9. 275D-08	1. 200D-02	8. 935D-05	-1. 723D-06	1. 874D-07	-3. 134D-05
3	-1. 145D-06	8. 935D-05	1. 971D-02	-1. 141D-05	-6. 257D-06	-1. 451D-03
4	-6. 654D-05	-1. 723D-06	-1. 141D-05	2. 339D-02	-3. 253D-04	7. 902D-05
5	3. 268D-05	1. 874D-07	-6. 257D-06	-3. 253D-04	1. 821D-02	-1. 781D-06
6	-4. 246D-07	-3. 134D-05	-1. 451D-03	7. 902D-05	-1. 781D-06	1. 869D-02
7	5. 693D-09	-5. 098D-05	2. 160D-05	-4. 197D-07	-5. 248D-08	-5. 456D-06
8	5. 216D-05	2. 017D-07	-5. 509D-05	-5. 503D-03	2. 633D-04	-4. 424D-05
9	-3. 048D-05	-6. 197D-08	2. 721D-07	2. 239D-05	-1. 818D-05	1. 919D-07
10	1. 049D-08	-7. 098D-06	-3. 873D-04	1. 305D-05	-6. 227D-08	1. 190D-04
11	-1. 169D-08	1. 340D-04	-8. 638D-06	1. 480D-07	1. 059D-07	-2. 619D-07
ROW \ COL	7	8	9	10	11	
1	5. 693D-09	5. 216D-05	-3. 048D-05	1. 049D-08	-1. 169D-08	
2	-5. 098D-05	2. 017D-07	-6. 197D-08	-7. 098D-06	1. 340D-04	
3	2. 160D-05	-5. 509D-05	2. 721D-07	-3. 873D-04	-8. 638D-06	
4	-4. 197D-07	-5. 503D-03	2. 239D-05	1. 305D-05	1. 480D-07	
5	-5. 248D-08	2. 633D-04	-1. 818D-05	-6. 227D-08	1. 059D-07	
6	-5. 456D-06	-4. 424D-05	1. 919D-07	1. 190D-04	-2. 619D-07	
7	3. 922D-02	4. 581D-08	1. 696D-08	-2. 069D-06	-3. 753D-05	
8	4. 581D-08	4. 749D-02	-2. 371D-05	-6. 353D-06	3. 091D-09	
9	1. 696D-08	-2. 371D-05	6. 794D-02	1. 501D-08	-5. 098D-08	
10	-2. 069D-06	-6. 353D-06	1. 501D-08	6. 800D-02	6. 233D-07	
11	-3. 753D-05	3. 091D-09	-5. 098D-08	6. 233D-07	8. 987D-02	

*** RETAINED MODAL ANGULAR MOMENTUM MATRIX FOR 1-AXIS ***

ROW \ COL	1	2	3	4	5	6
1	0. 000D+00					
2	0. 000D+00					
3	0. 000D+00					
4	0. 000D+00					
5	0. 000D+00	8. 969D-05				
6	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	-8. 969D-05	0. 000D+00
7	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	-1. 169D-09	2. 567D-06
8	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	1. 740D-06	-4. 613D-08
9	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	8. 073D-05	-4. 578D-09
10	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	-2. 029D-06	-3. 662D-07
11	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	-9. 332D-09	-5. 562D-06
12	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	-2. 147D-05	6. 393D-09
13	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	2. 402D-07	4. 835D-09
14	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	4. 748D-07	7. 846D-08
15	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	-1. 193D-09	1. 156D-06
16	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	-4. 221D-06	-3. 696D-10
17	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	-5. 032D-08	-9. 594D-09
ROW \ COL	7	8	9	10	11	12
1	0. 000D+00					
2	0. 000D+00					
3	0. 000D+00					
4	0. 000D+00					
5	1. 169D-09	-1. 740D-06	-8. 073D-05	2. 029D-06	9. 332D-09	2. 147D-05
6	-2. 567D-06	4. 613D-08	4. 578D-09	3. 662D-07	5. 562D-06	-6. 393D-09
7	0. 000D+00	-4. 982D-08	-2. 311D-06	5. 810D-08	3. 396D-10	6. 147D-07
8	4. 982D-08	0. 000D+00	4. 144D-08	-8. 150D-09	-1. 079D-07	-1. 092D-08
9	2. 311D-06	-4. 144D-08	0. 000D+00	-3. 297D-07	-5. 006D-06	4. 658D-09
10	-5. 810D-08	8. 150D-09	3. 297D-07	0. 000D+00	1. 258D-07	-8. 783D-08
11	-3. 396D-10	1. 079D-07	5. 006D-06	-1. 258D-07	0. 000D+00	-1. 332D-06
12	-6. 147D-07	1. 092D-08	-4. 658D-09	8. 783D-08	1. 332D-06	0. 000D+00
13	6. 877D-09	-2. 174D-10	-4. 364D-09	-8. 715D-10	-1. 490D-08	1. 175D-09
14	1. 359D-08	-1. 767D-09	-7. 065D-08	-1. 633D-10	-2. 943D-08	1. 882D-08
15	-1. 908D-11	-2. 243D-08	-1. 040D-06	2. 616D-08	1. 942D-10	2. 768D-07
16	-1. 208D-07	2. 178D-09	5. 481D-10	1. 723D-08	2. 617D-07	-3. 893D-10
17	-1. 441D-09	2. 120D-10	8. 638D-09	-1. 161D-11	3. 119D-09	-2. 301D-09
ROW \ COL	13	14	15	16	17	
1	0. 000D+00					
2	0. 000D+00					
3	0. 000D+00					
4	0. 000D+00					
5	-2. 402D-07	-4. 748D-07	1. 193D-09	4. 221D-06	5. 032D-08	
6	-4. 835D-09	-7. 846D-08	-1. 156D-06	3. 696D-10	9. 594D-09	
7	-6. 877D-09	-1. 359D-08	1. 908D-11	1. 208D-07	1. 441D-09	
8	2. 174D-10	1. 767D-09	2. 243D-08	-2. 178D-09	-2. 120D-10	
9	4. 364D-09	7. 065D-08	1. 040D-06	-5. 481D-10	-8. 638D-09	
10	8. 715D-10	1. 633D-10	-2. 616D-08	-1. 723D-08	1. 161D-11	
11	1. 490D-08	2. 943D-08	-1. 942D-10	-2. 617D-07	-3. 119D-09	
12	-1. 175D-09	-1. 882D-08	-2. 768D-07	3. 893D-10	2. 301D-09	
13	0. 000D+00	1. 846D-10	3. 096D-09	2. 265D-10	-2. 298D-11	
14	-1. 846D-10	0. 000D+00	6. 120D-09	3. 690D-09	-6. 764D-12	
15	-3. 096D-09	-6. 120D-09	0. 000D+00	5. 440D-08	6. 487D-10	
16	-2. 265D-10	-3. 690D-09	-5. 440D-08	0. 000D+00	4. 513D-10	

ROW \ COL 13

14

15

16

17

17 2.298D-11 6.764D-12 -6.487D-10 -4.513D-10 0.000D+00

*** RETAINED MODAL ANGULAR MOMENTUM MATRIX FOR 2-AXIS ***

ROW \ COL	1	2	3	4	5	6
1	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00
2	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00
3	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00
4	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	-8. 105D-05
5	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	6. 475D-08
6	0. 000D+00	0. 000D+00	0. 000D+00	8. 105D-05	-6. 475D-08	0. 000D+00
7	0. 000D+00	0. 000D+00	0. 000D+00	1. 056D-09	-8. 440D-13	1. 022D-06
8	0. 000D+00	0. 000D+00	0. 000D+00	-1. 573D-06	1. 256D-09	-8. 086D-09
9	0. 000D+00	0. 000D+00	0. 000D+00	-7. 295D-05	5. 828D-08	-1. 428D-06
10	0. 000D+00	0. 000D+00	0. 000D+00	1. 834D-06	-1. 465D-09	-8. 288D-05
11	0. 000D+00	0. 000D+00	0. 000D+00	8. 432D-09	-6. 737D-12	3. 754D-06
12	0. 000D+00	0. 000D+00	0. 000D+00	1. 941D-05	-1. 550D-08	-4. 866D-07
13	0. 000D+00	0. 000D+00	0. 000D+00	-2. 171D-07	1. 734D-10	-1. 014D-09
14	0. 000D+00	0. 000D+00	0. 000D+00	-4. 290D-07	3. 427D-10	4. 952D-05
15	0. 000D+00	0. 000D+00	0. 000D+00	1. 078D-09	-8. 611D-13	-1. 971D-07
16	0. 000D+00	0. 000D+00	0. 000D+00	3. 814D-06	-3. 047D-09	-2. 809D-08
17	0. 000D+00	0. 000D+00	0. 000D+00	4. 547D-08	-3. 633D-11	3. 320D-10

ROW \ COL	7	8	9	10	11	12
1	0. 000D+00					
2	0. 000D+00					
3	0. 000D+00					
4	-1. 056D-09	1. 573D-06	7. 295D-05	-1. 834D-06	-8. 432D-09	-1. 941D-05
5	8. 440D-13	-1. 256D-09	-5. 828D-08	1. 465D-09	6. 737D-12	1. 550D-08
6	-1. 022D-06	8. 086D-09	1. 428D-06	8. 288D-05	-3. 754D-06	4. 866D-07
7	0. 000D+00	-1. 983D-08	-9. 197D-07	2. 420D-08	5. 737D-11	2. 447D-07
8	1. 983D-08	0. 000D+00	-2. 043D-08	-1. 608D-06	7. 285D-08	-1. 138D-08
9	9. 197D-07	2. 043D-08	0. 000D+00	-7. 463D-05	3. 379D-06	-7. 799D-07
10	-2. 420D-08	1. 608D-06	7. 463D-05	0. 000D+00	-9. 357D-08	-1. 983D-05
11	-5. 737D-11	-7. 285D-08	-3. 379D-06	9. 357D-08	0. 000D+00	8. 990D-07
12	-2. 447D-07	1. 138D-08	7. 799D-07	1. 983D-05	-8. 990D-07	0. 000D+00
13	2. 737D-09	-1. 980D-12	-2. 912D-09	-2. 220D-07	1. 006D-08	-1. 546D-09
14	6. 054D-09	-9. 609D-07	-4. 458D-05	6. 817D-07	2. 503D-08	1. 185D-05
15	-1. 616D-11	3. 825D-09	1. 775D-07	-3. 358D-09	-7. 044D-11	-4. 719D-08
16	-4. 809D-08	9. 256D-10	9. 248D-08	3. 899D-06	-1. 767D-07	1. 617D-08
17	-5. 733D-10	-1. 905D-12	5. 023D-10	4. 651D-08	-2. 106D-09	3. 525D-10

ROW \ COL	13	14	15	16	17
1	0. 000D+00				
2	0. 000D+00				
3	0. 000D+00				
4	2. 171D-07	4. 290D-07	-1. 078D-09	-3. 814D-06	-4. 547D-08
5	-1. 734D-10	-3. 427D-10	8. 611D-13	3. 047D-09	3. 633D-11
6	1. 014D-09	-4. 952D-05	1. 971D-07	2. 809D-08	-3. 320D-10
7	-2. 737D-09	-6. 054D-09	1. 616D-11	4. 809D-08	5. 733D-10
8	1. 980D-12	9. 609D-07	-3. 825D-09	-9. 256D-10	1. 905D-12
9	2. 912D-09	4. 458D-05	-1. 775D-07	-9. 248D-08	-5. 023D-10
10	2. 220D-07	-6. 817D-07	3. 358D-09	-3. 899D-06	-4. 651D-08
11	-1. 006D-08	-2. 503D-08	7. 044D-11	1. 767D-07	2. 106D-09
12	1. 546D-09	-1. 185D-05	4. 719D-08	-1. 617D-08	-3. 525D-10
13	0. 000D+00	1. 326D-07	-5. 280D-10	-1. 230D-10	3. 202D-13
14	-1. 326D-07	0. 000D+00	-3. 849D-10	2. 330D-06	2. 778D-08
15	5. 280D-10	3. 849D-10	0. 000D+00	-9. 276D-09	-1. 106D-10
16	1. 230D-10	-2. 330D-06	9. 276D-09	0. 000D+00	-3. 138D-11

ROW \ COL 13

14

15

16

17

17 -3.202D-13 -2.778D-08 1.106D-10 3.138D-11 0.000D+00

*** RETAINED MODAL ANGULAR MOMENTUM MATRIX FOR 3-AXIS ***

ROW \ COL	1	2	3	4	5	6
1	0. 000D+00					
2	0. 000D+00					
3	0. 000D+00					
4	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	1. 024D-04	-2. 345D-07
5	0. 000D+00	0. 000D+00	0. 000D+00	-1. 024D-04	0. 000D+00	-4. 705D-07
6	0. 000D+00	0. 000D+00	0. 000D+00	2. 345D-07	4. 705D-07	0. 000D+00
7	0. 000D+00	0. 000D+00	0. 000D+00	-2. 930D-06	-1. 288D-06	-1. 052D-08
8	0. 000D+00	0. 000D+00	0. 000D+00	4. 810D-08	1. 041D-09	2. 187D-10
9	0. 000D+00	0. 000D+00	0. 000D+00	-2. 058D-07	1. 380D-06	-4. 107D-09
10	0. 000D+00	0. 000D+00	0. 000D+00	4. 232D-07	1. 047D-04	-2. 378D-07
11	0. 000D+00	0. 000D+00	0. 000D+00	6. 347D-06	-4. 746D-06	4. 005D-08
12	0. 000D+00	0. 000D+00	0. 000D+00	4. 884D-08	7. 272D-07	-1. 441D-09
13	0. 000D+00	0. 000D+00	0. 000D+00	-6. 146D-09	2. 509D-11	-2. 831D-11
14	0. 000D+00	0. 000D+00	0. 000D+00	-9. 078D-08	-6. 254D-05	1. 428D-07
15	0. 000D+00	0. 000D+00	0. 000D+00	-1. 319D-06	2. 500D-07	-6. 636D-09
16	0. 000D+00	0. 000D+00	0. 000D+00	1. 146D-08	5. 762D-08	-7. 933D-11
17	0. 000D+00	0. 000D+00	0. 000D+00	1. 108D-08	-1. 641D-10	5. 131D-11
ROW \ COL	7	8	9	10	11	12
1	0. 000D+00					
2	0. 000D+00					
3	0. 000D+00					
4	2. 930D-06	-4. 810D-08	2. 058D-07	-4. 232D-07	-6. 347D-06	-4. 884D-08
5	1. 288D-06	-1. 041D-09	-1. 380D-06	-1. 047D-04	4. 746D-06	-7. 272D-07
6	1. 052D-08	-2. 187D-10	4. 107D-09	2. 378D-07	-4. 005D-08	1. 441D-09
7	0. 000D+00	5. 755D-10	-4. 209D-08	-2. 991D-06	2. 158D-07	-2. 020D-08
8	-5. 755D-10	0. 000D+00	6. 505D-10	4. 919D-08	-2. 295D-09	3. 412D-10
9	4. 209D-08	-6. 505D-10	0. 000D+00	-2. 162D-07	-7. 602D-08	-2. 121D-09
10	2. 991D-06	-4. 919D-08	2. 162D-07	0. 000D+00	-6. 511D-06	-4. 695D-08
11	-2. 158D-07	2. 295D-09	7. 602D-08	6. 511D-06	0. 000D+00	4. 736D-08
12	2. 020D-08	-3. 412D-10	2. 121D-09	4. 695D-08	-4. 736D-08	0. 000D+00
13	7. 807D-11	-7. 431D-14	-8. 281D-11	-6. 286D-09	2. 835D-10	-4. 368D-11
14	-1. 789D-06	2. 939D-08	-1. 270D-07	1. 658D-07	3. 882D-06	2. 920D-08
15	2. 376D-08	-1. 309D-10	-1. 728D-08	-1. 350D-06	4. 567D-08	-9. 492D-09
16	1. 505D-09	-2. 696D-11	2. 703D-10	1. 148D-08	-4. 104D-09	5. 390D-11
17	-1. 441D-10	1. 898D-13	1. 491D-10	1. 133D-08	-5. 037D-10	7. 881D-11
ROW \ COL	13	14	15	16	17	
1	0. 000D+00					
2	0. 000D+00					
3	0. 000D+00					
4	6. 146D-09	9. 078D-08	1. 319D-06	-1. 146D-08	-1. 108D-08	
5	-2. 509D-11	6. 254D-05	-2. 500D-07	-5. 762D-08	1. 641D-10	
6	2. 831D-11	-1. 428D-07	6. 636D-09	7. 933D-11	-5. 131D-11	
7	-7. 807D-11	1. 789D-06	-2. 376D-08	-1. 505D-09	1. 441D-10	
8	7. 431D-14	-2. 939D-08	1. 309D-10	2. 696D-11	-1. 898D-13	
9	8. 281D-11	1. 270D-07	1. 728D-08	-2. 703D-10	-1. 491D-10	
10	6. 286D-09	-1. 658D-07	1. 350D-06	-1. 148D-08	-1. 133D-08	
11	-2. 835D-10	-3. 882D-06	-4. 567D-08	4. 104D-09	5. 037D-10	
12	4. 368D-11	-2. 920D-08	9. 492D-09	-5. 390D-11	-7. 881D-11	
13	0. 000D+00	3. 755D-09	-1. 469D-11	-3. 462D-12	7. 135D-15	
14	-3. 755D-09	0. 000D+00	-8. 062D-07	6. 948D-09	6. 770D-09	
15	1. 469D-11	8. 062D-07	0. 000D+00	-7. 705D-10	-2. 495D-11	
16	3. 462D-12	-6. 948D-09	7. 705D-10	0. 000D+00	-6. 256D-12	

ROW \ COL	13	14	15	16	17
17	-7.135D-15	-6.770D-09	2.495D-11	6.256D-12	0.000D+00

*** RETAINED MODAL ANGULAR MOMENTUM MATRIX FOR 4-AXIS ***

ROW \ COL	1	2	3	4	5	6
1	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00
2	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00
3	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00
4	0. 000D+00	0. 000D+00	0. 000D+00	0. 000D+00	5. 909D-05	-4. 693D-05
5	0. 000D+00	0. 000D+00	0. 000D+00	-5. 909D-05	-1. 654D-24	5. 155D-05
6	0. 000D+00	0. 000D+00	0. 000D+00	4. 693D-05	-5. 155D-05	0. 000D+00
7	0. 000D+00	0. 000D+00	0. 000D+00	-1. 691D-06	-7. 444D-07	2. 066D-06
8	0. 000D+00	0. 000D+00	0. 000D+00	-8. 802D-07	1. 006D-06	-3. 118D-08
9	0. 000D+00	0. 000D+00	0. 000D+00	-4. 224D-05	4. 744D-05	-8. 294D-07
10	0. 000D+00	0. 000D+00	0. 000D+00	1. 303D-06	5. 926D-05	-4. 820D-05
11	0. 000D+00	0. 000D+00	0. 000D+00	3. 669D-06	-2. 746D-06	-1. 020D-06
12	0. 000D+00	0. 000D+00	0. 000D+00	1. 123D-05	-1. 199D-05	-2. 781D-07
13	0. 000D+00	0. 000D+00	0. 000D+00	-1. 289D-07	1. 388D-07	2. 190D-09
14	0. 000D+00	0. 000D+00	0. 000D+00	-3. 001D-07	-3. 583D-05	2. 872D-05
15	0. 000D+00	0. 000D+00	0. 000D+00	-7. 610D-07	1. 437D-07	5. 497D-07
16	0. 000D+00	0. 000D+00	0. 000D+00	2. 209D-06	-2. 405D-06	-1. 648D-08
17	0. 000D+00	0. 000D+00	0. 000D+00	3. 265D-08	-2. 917D-08	-5. 318D-09

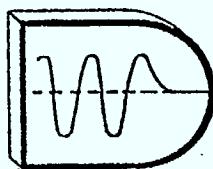
ROW \ COL	7	8	9	10	11	12
1	0. 000D+00					
2	0. 000D+00					
3	0. 000D+00					
4	1. 691D-06	8. 802D-07	4. 224D-05	-1. 303D-06	-3. 669D-06	-1. 123D-05
5	7. 444D-07	-1. 006D-06	-4. 744D-05	-5. 926D-05	2. 746D-06	1. 199D-05
6	-2. 066D-06	3. 118D-08	8. 294D-07	4. 820D-05	1. 020D-06	2. 781D-07
7	6. 785D-25	-3. 988D-08	-1. 890D-06	-1. 679D-06	1. 248D-07	4. 845D-07
8	3. 988D-08	0. 000D+00	1. 250D-08	-9. 049D-07	-2. 157D-08	-1. 268D-08
9	1. 890D-06	-1. 250D-08	-6. 617D-23	-4. 340D-05	-9. 832D-07	-4. 488D-07
10	1. 679D-06	9. 049D-07	4. 340D-05	0. 000D+00	-3. 740D-06	-1. 153D-05
11	-1. 248D-07	2. 157D-08	9. 832D-07	3. 740D-06	-1. 377D-23	-2. 225D-07
12	-4. 845D-07	1. 268D-08	4. 488D-07	1. 153D-05	2. 225D-07	0. 000D+00
13	5. 595D-09	-1. 267D-10	-4. 249D-09	-1. 323D-07	-2. 631D-09	-2. 396D-10
14	-1. 022D-06	-5. 388D-07	-2. 585D-05	4. 892D-07	2. 239D-06	6. 872D-06
15	1. 370D-08	-1. 082D-08	-5. 082D-07	-7. 663D-07	2. 644D-08	1. 271D-07
16	-9. 665D-08	1. 776D-09	5. 387D-08	2. 268D-06	4. 673D-08	9. 144D-09
17	-1. 246D-09	1. 214D-10	5. 363D-09	3. 339D-08	2. 941D-10	-1. 079D-09

ROW \ COL	13	14	15	16	17
1	0. 000D+00				
2	0. 000D+00				
3	0. 000D+00				
4	1. 289D-07	3. 001D-07	7. 610D-07	-2. 209D-06	-3. 265D-08
5	-1. 388D-07	3. 583D-05	-1. 437D-07	2. 405D-06	2. 917D-08
6	-2. 190D-09	-2. 872D-05	-5. 497D-07	1. 648D-08	5. 318D-09
7	-5. 595D-09	1. 022D-06	-1. 370D-08	9. 665D-08	1. 246D-09
8	1. 267D-10	5. 388D-07	1. 082D-08	-1. 776D-09	-1. 214D-10
9	4. 249D-09	2. 585D-05	5. 082D-07	-5. 387D-08	-5. 363D-09
10	1. 323D-07	-4. 892D-07	7. 663D-07	-2. 268D-06	-3. 339D-08
11	2. 631D-09	-2. 239D-06	-2. 644D-08	-4. 673D-08	-2. 941D-10
12	2. 396D-10	-6. 872D-06	-1. 271D-07	-9. 144D-09	1. 079D-09
13	2. 019D-28	7. 885D-08	1. 474D-09	5. 780D-11	-1. 308D-11
14	-7. 885D-08	0. 000D+00	-4. 622D-07	1. 351D-06	1. 995D-08
15	-1. 474D-09	4. 622D-07	4. 604D-26	2. 560D-08	2. 962D-10
16	-5. 780D-11	-1. 351D-06	-2. 560D-08	0. 000D+00	2. 388D-10

ROW \ COL	13	14	15	16	17
17	1.308D-11	-1.995D-08	-2.962D-10	-2.388D-10	0.000D+00

*** RETAINED MODAL CONTROL DISTRIBUTION MATRIX ***

ROW \ COL	1	2	3	4	5	6
1	2.641D-02	0.000D+00	0.000D+00	0.000D+00	0.000D+00	0.000D+00
2	0.000D+00	2.641D-02	0.000D+00	0.000D+00	0.000D+00	0.000D+00
3	0.000D+00	0.000D+00	2.641D-02	0.000D+00	0.000D+00	0.000D+00
4	0.000D+00	1.332D-02	-1.668D-19	9.617D-03	0.000D+00	0.000D+00
5	-1.474D-02	-1.064D-05	5.822D-05	-7.683D-06	1.064D-02	0.000D+00
6	3.376D-05	1.513D-05	-1.334D-07	4.422D-05	-2.438D-05	8.427D-03
7	5.706D-03	-2.243D-04	9.308D-07	-1.213D-04	3.047D-04	1.099D-07
8	6.129D-06	1.038D-06	-6.144D-03	1.014D-07	-5.001D-06	-1.635D-04
9	-2.651D-05	2.201D-04	1.402D-04	1.296D-04	2.140D-05	-7.585D-03
10	1.585D-04	1.356D-02	-2.371D-06	9.836D-03	-4.401D-05	1.907D-04
11	1.608D-03	-6.239D-04	-3.851D-06	-4.455D-04	-6.600D-04	8.768D-07
12	6.339D-06	8.327D-05	5.599D-05	6.833D-05	-5.079D-06	2.018D-03
13	-8.779D-07	1.232D-07	6.614D-04	1.896D-09	6.391D-07	-2.257D-05
14	-2.473D-05	-8.037D-03	8.384D-08	-5.876D-03	9.439D-06	-4.461D-05
15	-6.005D-04	4.493D-05	7.828D-07	2.339D-05	1.372D-04	1.121D-07
16	2.034D-06	5.230D-06	3.827D-08	5.414D-06	-1.191D-06	3.966D-04
17	1.605D-06	-4.396D-08	-1.509D-03	-1.458D-08	-1.152D-06	4.728D-06



YNACON

APPENDIX F

MSAT DYNAMICS MODEL

MARK II

(EVALUATION MODEL: $N_e = 11$)

Transfer Function Matrices

$$\begin{gathered} \underline{I} \\ \underline{I}^{-1} \\ \underline{r}_c \\ -\underline{I}^{-1}\underline{r}_c^x \end{gathered}$$

$$\begin{bmatrix} \omega_\alpha & \\ & \zeta_\alpha \\ \underline{e}_{w\alpha}^T & \underline{e}_{\theta\alpha}^T \\ \underline{K}_{f\alpha} & \underline{K}_{g\alpha} \end{bmatrix}, \quad \alpha = 1, \dots, 11$$

INERTIA MATRIX I

1.081D+04	7.805D+00	-5.671D+01
7.805D+00	8.829D+03	2.550D+01
-5.671D+01	2.550D+01	1.408D+04

INVERSE OF INERTIA MATRIX I

9.249D-05	-8.285D-08	3.727D-07
-8.285D-08	1.133D-04	-2.055D-07
3.727D-07	-2.055D-07	7.102D-05

RC - POSITION OF MASS CENTER RELATIVE TO OB

5.471D-03	0.000D+00	1.385D+00
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THE MATRIX PRODUCT -(I**-1)(RC**X)

1.147D-07	1.281D-04	-4.532D-10
-1.568D-04	-1.136D-07	6.197D-07
2.845D-07	1.275D-07	-1.124D-09

FLEXIBLE MODE: ALPHA = 1

OMEGA = 1.111D+00 RAD/SEC

ZETA = 5.135D-03

T E W1	T E THETA1
5.706D-03 -2.243D-04 9.308D-07	-1.213D-04 3.047D-04 1.099D-07
K F1	K G1
-6.919D-07 2.720D-08 -1.129D-10	1.470D-08 -3.694D-08 -1.332D-11
1.738D-06 -6.834D-08 2.836D-10	-3.694D-08 9.282D-08 3.347D-11
6.268D-10 -2.464D-11 1.023D-13	-1.332D-11 3.347D-11 1.207D-14

FLEXIBLE MODE: ALPHA = 2

OMEGA = 1.169D+00 RAD/SEC
2

ZETA = 5.134D-03
2

T
E
W2

T
E
THETA2

6.129D-06 1.038D-06 -6.144D-03 1.014D-07 -5.001D-06 -1.635D-04

K
F2

K
G2

6.217D-13	1.053D-13	-6.233D-10	1.029D-14	-5.074D-13	-1.659D-11
-3.065D-11	-5.190D-12	3.073D-08	-5.074D-13	2.501D-11	8.178D-10
-1.002D-09	-1.697D-10	1.005D-06	-1.659D-11	8.178D-10	2.674D-08

FLEXIBLE MODE: ALPHA = 3

OMEGA = 1.469D+00 RAD/SEC
3

ZETA = 6.707D-03
3

T
E
W3

-2.651D-05 2.201D-04 1.402D-04 1.296D-04 2.140D-05 -7.585D-03

T
E
THETA3

K
F3

-3.437D-09 2.853D-08 1.817D-08 1.681D-08 2.774D-09 -9.834D-07
-5.674D-10 4.710D-09 3.000D-09 2.774D-09 4.580D-10 -1.623D-07
2.011D-07 -1.669D-06 -1.063D-06 -9.834D-07 -1.623D-07 5.754D-05

FLEXIBLE MODE: ALPHA = 4

OMEGA = 1.643D+00 RAD/SEC
4

ZETA = 7.119D-03
4

T
E
W4

T
E
THETA4

1.585D-04	1.356D-02	-2.371D-06	9.836D-03	-4.401D-05	1.907D-04
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K
F4

K
G4

1.559D-06	1.334D-04	-2.332D-08	9.674D-05	-4.328D-07	1.875D-06
-6.975D-09	-5.969D-07	1.043D-10	-4.328D-07	1.937D-09	-8.391D-09
3.022D-08	2.586D-06	-4.520D-10	1.875D-06	-8.391D-09	3.636D-08

FLEXIBLE MODE: ALPHA = 5

OMEGA₅ = 1.815D+00 RAD/SEC

ZETA₅ = 5.016D-03

T
E
W5

T
E
THETAS

1.608D-03 -6.239D-04 -3.851D-06 -4.455D-04 -6.600D-04 8.768D-07

K
F5

K
G5

-7.164D-07	2.780D-07	1.716D-09	1.985D-07	2.940D-07	-3.906D-10
-1.061D-06	4.118D-07	2.541D-09	2.940D-07	4.356D-07	-5.767D-10
1.410D-09	-5.471D-10	-3.376D-12	-3.906D-10	-5.787D-10	7.688D-13

FLEXIBLE MODE: ALPHA = 6

OMEGA = 1.826D+00 RAD/SEC
6

ZETA = 5.116D-03
6

T E W6	T E THETA6
6.339D-06	6.833D-05
8.327D-05	-5.079D-06
5.599D-05	2.018D-03
K F6	K G6
4.332D-10	4.670D-09
-3.219D-11	-3.471D-10
1.279D-08	2.579D-11
5.690D-09	1.379D-07
-4.229D-10	-1.025D-08
1.680D-07	4.071D-06
3.826D-09	1.130D-07

FLEXIBLE MODE: ALPHA = 7

OMEGA = 3.920D+00 RAD/SEC
7

ZETA = 5.002D-03
7

T
E
W7

-8.779D-07 1.232D-07 6.614D-04 1.896D-09 6.391D-07 -2.257D-05

T
E
THETA7

K
F7

-1.665D-15 2.337D-16 1.254D-12 3.596D-18 1.212D-15 -4.280D-14
-5.610D-13 7.876D-14 4.227D-10 1.212D-15 4.084D-13 -1.442D-11
1.982D-11 -2.782D-12 -1.493D-08 -4.280D-14 -1.442D-11 5.095D-10

FLEXIBLE MODE: ALPHA = 8

OMEGA = 4.232D+00 RAD/SEC
B

ZETA = 5.610D-03
B

T E WB				T E THETAB
K FB				K GB
-2.473D-05	-8.037D-03	8.384D-08	-5.876D-03	9.439D-06 -4.461D-05
1.453D-07	4.723D-05	-4.927D-10	3.453D-05	-5.547D-08 2.621D-07
-2.335D-10	-7.586D-08	7.914D-13	-5.547D-08	8.910D-11 -4.211D-10
1.103D-09	3.585D-07	-3.740D-12	2.621D-07	-4.211D-10 1.990D-09

FLEXIBLE MODE: ALPHA = 9

OMEGA = 6.792D+00 RAD/SEC
9

ZETA = 5.001D-03
9

T E W9	T E THETA9
-6.005D-04	4.493D-05
7.828D-07	2.339D-05
	1.372D-04
	1.121D-07
K F9	K G9
-1.405D-08	1.051D-09
-8.237D-08	6.163D-09
-6.730D-11	5.035D-12
	1.831D-11
	1.074D-10
	8.773D-14
	5.472D-10
	3.209D-09
	2.622D-12
	3.209D-09
	1.881D-08
	1.537D-11
	1.256D-14

FLEXIBLE MODE: ALPHA = 10

OMEGA = 6.796D+00 RAD/SEC
10

ZETA = 5.003D-03
10

T E W10	T E THETA10
2.034D-06	5.230D-06
3.827D-08	5.414D-06
-1.191D-06	3.966D-04
K F10	K G10
1.101D-11	2.932D-11
-2.423D-12	-6.449D-12
8.067D-10	2.147D-09
2.832D-11	-4.449D-12
-6.230D-12	1.419D-12
2.074D-09	-4.724D-10
2.072D-13	2.147D-09
-4.558D-14	-4.724D-10
1.518D-11	1.573D-07

FLEXIBLE MODE: ALPHA = 11

OMEGA = 8.973D+00 RAD/SEC
11

ZETA = 5.008D-03
11

T
E
W11

1.605D-06 -4.396D-08 -1.509D-03 -1.458D-08 -1.152D-06 4.728D-06

T
E
THETA11

K
F11

-2.340D-14 6.411D-16 2.200D-11 2.127D-16 1.680D-14 -6.896D-14
-1.849D-12 5.065D-14 1.738D-09 1.680D-14 1.327D-12 -5.448D-12
7.587D-12 -2.078D-13 -7.133D-09 -6.896D-14 -5.448D-12 2.236D-11

K
G11

QUEEN P 91 .C655 S5585 1983
Sincarsin, G. B.
Structural dynamics model fo

CACC / CCAC



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SINGARIN, G.B.
P 91 .C655 S5585 1983 JOUR
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or MSAT (Mark II) with visu
alization matrix

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1983

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DATE DE RETOUR

LOWE-MARTIN No. 1137

