## Appendix 9.2 RIGID-SPACE-FRAME ANALYSIS USING PROGRAM *ELSAS* (Contd.)

FRAME ANALYSIS BY PROGRAM ELSAS

THE FIRST ORDER ANALYSIS OF FRAME NO. 5

DEFORMATIONS CAUSED BY LOAD SET NO. 1

| NODE | X-MOVEMENT | Y-MOVEMENT | Z-MOVEMENT | X-ROTATION | Y-ROTATION | Z-ROTATION |
|---|---|---|---|---|---|---|
| 1 | .000000 | .000000 | .000000 | .000000 | .000000 | .000000 |
| 2 | −.000059 | −5.875643 | −.784911 | −.457653 | .088085 | −.606305 |
| 3 | .863621 | −.000824 | −.785552 | −.301860 | .059809 | −.139990 |
| 4 | .000000 | .000000 | .000000 | .000000 | .000000 | .000000 |

MEMBER NO. 1

| L/SET | AX. TENSION | MAB-Z-AXIS | MBA-Z-AXIS | MAB-Y-AXIS | MBA-Y-AXIS | TORQUE |
|---|---|---|---|---|---|---|
| 1 | −26.6400 | 5822.5884 | 1730.0284 | −2919.8601 | −541.5693 | 1697.8915 |

MEMBER NO. 2

| L/SET | AX.TENSION | MAB-Z-AXIS | MBA-Z-AXIS | MAB-Y-AXIS | MBA-Y-AXIS | TORQUE |
|---|---|---|---|---|---|---|
| 1 | −288.4546 | −1697.8915 | −2749.4917 | 541.5694 | −221.8898 | −1730.0284 |

MEMBER NO. 3

| L/SET | AX.TENSION | MAB-Z-AXIS | MBA-Z-AXIS | MAB-Y-AXIS | MBA-Y-AXIS | TORQUE |
|---|---|---|---|---|---|---|
| 1 | −370.6153 | 2749.4917 | 711.9361 | −1730.0285 | 2049.7080 | −221.8898 |

ANALYSIS COMPLETED FOR FRAME No. 5

## Appendix 9.3 MODIFICATIONS TO PROGRAM *ELSAS*

*General Notes*

1. The following Fortran statements, when merged with the previous listing, will effect a change of the equation solving method. The changes are very similar to those explained previously in the Appendix 8.3 and reference should be made to that section for a more complete explanation.

MODIFICATIONS TO PROGRAM ELSAS

```
1010  + CORD(6,3),JTYPE(6,6),BK(400),LSN(3),BETA(6,2),GAMMA(6),
1020  + MCON(6,2),SMA(6,2),SVT(6),AREA(6),E(6),G(6),RW(100)

1201  KB=0
1202  DO 37 I=1,NM
1203  KB1=IABS(MCON(I,1)-MCON(I,2))
1204  IF(KB1-KB) 37,37,36
1205  36 KB=KB1
1206  37 CONTINUE
```