

NAG Library Routine Document

F06BHF

Note: before using this routine, please read the Users' Note for your implementation to check the interpretation of *bold italicised* terms and other implementation-dependent details.

1 Purpose

F06BHF applies a real similarity rotation to a 2 by 2 real symmetric matrix.

2 Specification

```
SUBROUTINE F06BHF (X, Y, Z, C, S)
REAL (KIND=nag_wp) X, Y, Z, C, S
```

3 Description

F06BHF applies a real similarity rotation, with parameters c and s , to a given 2 by 2 real symmetric matrix; that is, it performs the operation:

$$\begin{pmatrix} x & y \\ y & z \end{pmatrix} \leftarrow \begin{pmatrix} c & s \\ -s & c \end{pmatrix} \begin{pmatrix} x & y \\ y & z \end{pmatrix} \begin{pmatrix} c & -s \\ s & c \end{pmatrix}.$$

4 References

None.

5 Parameters

- | | | |
|----|---|---------------------|
| 1: | X – REAL (KIND=nag_wp)
<i>On entry:</i> the value x , the (1,1) element of the input matrix.
<i>On exit:</i> the transformed value x . | <i>Input/Output</i> |
| 2: | Y – REAL (KIND=nag_wp)
<i>On entry:</i> the value y , the (1,2) or (2,1) element of the input matrix.
<i>On exit:</i> the transformed value y . | <i>Input/Output</i> |
| 3: | Z – REAL (KIND=nag_wp)
<i>On entry:</i> the value z , the (2,2) element of the input matrix.
<i>On exit:</i> the transformed value z . | <i>Input/Output</i> |
| 4: | C – REAL (KIND=nag_wp)
<i>On entry:</i> the value c , the cosine of the rotation. | <i>Input</i> |
| 5: | S – REAL (KIND=nag_wp)
<i>On entry:</i> the value s , the sine of the rotation. | <i>Input</i> |

6 Error Indicators and Warnings

None.

7 Accuracy

Not applicable.

8 Parallelism and Performance

Not applicable.

9 Further Comments

None.

10 Example

None.
