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 Arguments

1: X – REAL (KIND=nag_wp) *Input/Output*

On entry: the value x, the $(1,1)$ element of the input matrix.

On exit: the transformed value x.

2: Y – REAL (KIND=nag_wp) *Input/Output*

On entry: the value y, the $(1,2)$ or $(2,1)$ element of the input matrix.

On exit: the transformed value y.

3: Z – REAL (KIND=nag_wp) *Input/Output*

On entry: the value z, the $(2,2)$ element of the input matrix.

On exit: the transformed value z.

4: C – REAL (KIND=nag_wp) *Input*

On entry: the value c, the cosine of the rotation.

5: S – REAL (KIND=nag_wp) *Input*

On entry: the value s, the sine of the rotation.

6 Error Indicators and Warnings

None.

7 Accuracy

Not applicable.

8 Parallelism and Performance

F06BHF is not threaded in any implementation.

9 Further Comments

None.

10 Example

None.