NAG Fortran Library Routine Document

D02NRF

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

D02NRF is an enquiry routine for communicating with D02NMF or D02NNF when supplying columns of a sparse Jacobian matrix.

2 Specification

```
SUBROUTINE D02NRF(J, IPLACE, INFORM)
INTEGER           J, IPLACE, INFORM(23)
```

3 Description

D02NRF is required when D02NMF or D02NNF is being used with sparse matrix linear algebra. After an exit from D02NMF or D02NNF with IREVCM = 8, D02NRF must be called to determine which column of the Jacobian is required and where it is to be placed in the array RWORK (a parameter of D02NMF or D02NNF).

4 References

None.

5 Parameters

1: J – INTEGER *Output*

On exit: the index j of the column of the Jacobian which is required.

2: IPLACE – INTEGER *Output*

On exit: indicates which locations in the array RWORK to fill with the j th column. If IPLACE = 1 the (i, j)th element of the Jacobian must be placed in RWORK$(50 + 2 \times \text{NEQMAX} + i)$, otherwise the (i, j) th element must be placed in RWORK$(50 + \text{NEQMAX} + i)$. If JCEVAL = 'F', in the previous call to D02NUF, then IPLACE = 2 always, hence the jth column of the Jacobian must be placed in RWORK$(50 + \text{NEQMAX} + i)$, for $i = 1, 2, \ldots, \text{NEQ}$.

RWORK, NEQ and NEQMAX are parameters of D02NMF and D02NNF.

3: INFORM(23) – INTEGER array *Workspace*

This must be the same array as the array INFORM supplied to D02NMF or D02NNF. Its contents must not be changed between calls of D02NMF or D02NNF and calls of D02NRF.

6 Error Indicators and Warnings

None.

7 Accuracy

Not applicable.

8 Further Comments

None.

9 Example

See Section 9 of the document for D02NNF.
