

NAG Fortran Library Routine Document

G05YGF

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

G05YGF initializes the Neiderreiter generator. It must be called before using G05YHF and is required if a Neiderreiter sequence is wanted from G05YJF or G05YKF.

2 Specification

```
SUBROUTINE G05YGF (IDIM, IREF, ISKIP, IFAIL)
  INTEGER          IDIM, IREF(2000), ISKIP, IFAIL
```

3 Description

G05YGF places vital initialization information into the array IREF for subsequent use by the generator routines.

4 References

None.

5 Parameters

- | | | |
|----|--|---------------------|
| 1: | IDIM – INTEGER | <i>Input</i> |
| | <i>On entry:</i> the number of dimensions required. | |
| | <i>Constraint:</i> $1 \leq \text{IDIM} \leq 40$. | |
| 2: | IREF(2000) – INTEGER array | <i>Output</i> |
| | <i>On exit:</i> contains initialization information for use with the generator routines. IREF should not be altered in any way between initialization and calls of the generator routines. | |
| 3: | ISKIP – INTEGER | <i>Input</i> |
| | <i>On entry:</i> the number of terms of the sequence to skip on initialization. | |
| | <i>Constraint:</i> $\text{ISKIP} \leq 2^{15}$. | |
| 4: | IFAIL – INTEGER | <i>Input/Output</i> |
| | <i>On entry:</i> IFAIL must be set to 0, –1 or 1. Users who are unfamiliar with this parameter should refer to Chapter P01 for details. | |
| | <i>On exit:</i> IFAIL = 0 unless the routine detects an error (see Section 6). | |

For environments where it might be inappropriate to halt program execution when an error is detected, the value –1 or 1 is recommended. If the output of error messages is undesirable, then the value 1 is recommended. Otherwise, for users not familiar with this parameter the recommended value is 0. **When the value –1 or 1 is used it is essential to test the value of IFAIL on exit.**

6 Error Indicators and Warnings

If on entry $IFAIL = 0$ or -1 , explanatory error messages are output on the current error message unit (as defined by X04AAF).

Errors or warnings detected by the routine:

$IFAIL = 1$

On entry, $IDIM < 1$ or $IDIM > 40$.

$IFAIL = 2$

The value of $ISKIP > 2^{15}$.

$IFAIL = 3$

A system error has occurred. Please contact NAG.

7 Accuracy

Not applicable.

8 Further Comments

None.

9 Example

See Section 9 of the document for G05YHF.
