ID03

1 SUMMARY

Calculates the number of **seconds elapsed between two given date/time instants** given in units of years, months, days, hours, minutes and fractions of a minute, in the range 1st March, 1900 to 28th Feb. 2100.

ATTRIBUTES — **Version:** 1.0.0. **Types:** ID03A; ID03AD. **Original date:** August 1964. **Origin:** A.Bailey, Harwell.

2 HOW TO USE THE PACKAGE

2.1 Argument list

The single precision version

```
CALL ID03A(HOUR1,IDAY1,MON1,IY1,HOUR2,IDAY2,MON2,IY2,TIM)
```

The double precision version

```
CALL ID03AD(HOUR1,IDAY1,MON1,IY1,HOUR2,IDAY2,MON2,IY2,TIM)
```

HOUR1 is a REAL (DOUBLE PRECISION in the D version) variable which must be set by the user to the hour component of the first of the date/time values. Minutes and seconds are also accommodated in the following manner: the integer part of HOUR1 specifies the number of hours, the first two fractional part decimal digits specify the minutes, and seconds are specified as decimal parts of a minute, e.g.

> 12.03 specifies 3 minutes past 12 noon,
>
> 14.20 specifies 20 minutes past 2 p.m.,
>
> 6.425 specifies 42 minutes, 30 seconds past 6 a.m.

This argument is not altered by the subroutine. **Restriction:** $0 \le$ HOUR1 ≤ 23.6.

IDAY1 is an INTEGER variable which must be set by the user to the day number of the month for the first of the date/time values. This argument is not altered by the subroutine. **Restriction:** $1 \le$ IDAY1 ≤ 31.

MON1 is an INTEGER variable which must be set by the user to the month number of the year, e.g. 1 for January, 2 for February, etc., for the first of the date/time values. This argument is not altered by the subroutine. **Restriction:** $1 \le$ MON1 ≤ 12.

IY1 is an INTEGER variable which must be set by the user to the year, e.g. 1988, for the first of the date/time values. This argument is not altered by the subroutine.

HOUR2 is a REAL (DOUBLE PRECISION in the D version) variable which must be set by the user to the hour component of the second of the date/time values, see HOUR1 for details. This argument is not altered by the subroutine. **Restriction:** $0 \le$ HOUR2 ≤ 23.6.

IDAY2 is an INTEGER variable which must be set by the user to the day number of the month for the second of the date/time values. This argument is not altered by the subroutine. **Restriction:** $1 \le$ IDAY2 ≤ 31.

MON2 is an INTEGER variable which must be set by the user to the month number of the year for the second of the date/time values. This argument is not altered by the subroutine. **Restriction:** $1 \le$ MON2 ≤ 12.

IY2 is an INTEGER variable which must be set by the user to the year for the second of the date/time values. This argument is not altered by the subroutine.

TIME is a REAL (DOUBLE PRECISION in the D version) variable which is set by the subroutine to the time elapsed in seconds and fractions of a second between the two given date/time instants. It will be positive or negative depending on the order in which the two instants are given. Leap years are taken into account, but all years

ending in 00 are regarded as leap years, so the subroutine is only accurate in the range lst March 1900 to 28th February 2100.

3 GENERAL INFORMATION

Use of common: None.

Workspace: None.

Other routines called directly: The single precision version, ID03A, contains a private routine ID03B.

Input/output: None.

Restrictions:

$0 \le$ HOUR1,HOUR2 ≤ 23.6,

$1 \le$ IDAY1,IDAY2 ≤ 31,

$1 \le$ MON1,MON2 ≤ 12.

These restrictions are not checked by the subroutine, hence e.g 36/1/1964 is taken as 5/2/1964.