1 SUMMARY

Given that **A** is a symmetric n x n matrix and given its inverse **B**, to replace **B** by the $(n-1)\times(n-1)$ matrix which is the inverse of the matrix obtained by deleting the last row and column of **A**.

ATTRIBUTES — **Version:** 1.0.0. **Types:** `MB04A, MB04AD.` **Original date:** May 1964. **Origin:** M.J.D. Powell, Harwell.

2 HOW TO USE THE PACKAGE

2.1 The argument list and calling sequence

The single precision version

```
CALL MB04A (B,N,IDIM)
```

The double precision version

```
CALL MB04AD (B,N,IDIM)
```

Note that **A** does not appear in the argument list.

`B` is a `REAL` (`DOUBLE PRECISION` in the D version) array for the elements of the matrix **B**.

`N` is an `INTEGER` giving the dimension of the original matrix **B**.

`IDIM` is an `INTEGER` which specifies the first dimension of the array **B**, so that in the calling routine there will normally be a statement of the form

```
DIMENSION  B(IDIM,    )
```

3 GENERAL INFORMATION

Use of common: None.

Workspace: None.

Input/output: None.

Restrictions:

$N \geq 2$

$B(N,N) \neq 0$.

4 METHOD

The required matrix is calculated as

$$\mathbf{B}_0 - \frac{1}{b}\beta\beta^T$$

where the original **B** is partitioned into

$$\begin{pmatrix} \mathbf{B}_0 & \beta \\ \beta^T & b \end{pmatrix}.$$