



# ESDU 86041

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Supersedes ESDU Aero A.00.00.05  
and ESDU Aero A.00.00.06

## Conversion of stability derivatives for a general change of body axes

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## THE PREPARATION OF THIS DATA ITEM

The work on this particular Data Item which supersedes Item Nos. ESDU Aero A.00.00.05 and ESDU Aero A.00.00.06, was monitored and guided by the Aerodynamics Committee. This Committee first met in 1942 and now has the following membership:

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The member of staff who undertook the technical work involved in the initial assessment of the available information and the construction and subsequent development of the Item was

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## CONVERSION OF STABILITY DERIVATIVES FOR A GENERAL CHANGE OF BODY AXES

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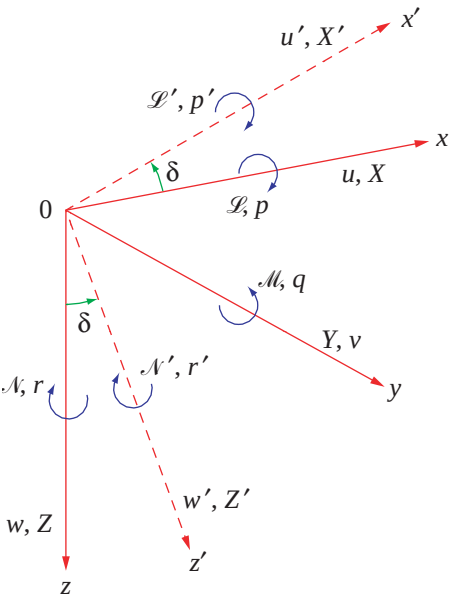
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CONVERSION OF STABILITY DERIVATIVES FOR A GENERAL CHANGE OF BODY AXES

1. NOTATION AND UNITS

|                      |                                                                                                                                                     | SI     | British |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|
| $0xyz$               | body axis system                                                                                                                                    |        |         |
| $0x'y'z'$            | body axis system obtained by rotating $x$ and $z$ axes of $0xyz$ through an angle $\delta$ about the $y$ axis, see Sketch 1.1                       |        |         |
| $0'x'y'z'$           | body axis system obtained by translating origin of $0xyz$ by distances $\Delta x$ and $\Delta z$ in the $xz$ plane without rotation, see Sketch 1.2 |        |         |
| $\delta$             | angle of rotation about $y$ axis                                                                                                                    | degree | degree  |
| $\Delta x, \Delta z$ | translations along $x$ and $z$ axes                                                                                                                 | m      | ft      |

For other notation see Item No. 86021 but note that in this Item primes are used only to denote changes of axes and do not represent perturbations, as they do in Item No. 86021.



Sketch 1.1 Rotation of  $x$  and  $z$  axes through an angle  $\delta$