NAG Fortran Library Chapter Contents

D02 – Ordinary Differential Equations

Note: please refer to the Users' Note for your implementation to check that a routine is available.

D02 Chapter Introduction

D02M/N Sub-chapter Introduction

Routine Name	Mark of Introduction	Purpose
D02AGF	2	ODEs, boundary value problem, shooting and matching technique, allowing interior matching point, general parameters to be determined
D02BGF	7	ODEs, IVP, Runge–Kutta–Merson method, until a component attains given value (simple driver)
D02BHF	7	ODEs, IVP, Runge–Kutta–Merson method, until function of solution is zero (simple driver)
D02BJF	18	ODEs, IVP, Runge–Kutta method, until function of solution is zero, integration over range with intermediate output (simple driver)
D02CJF	13	ODEs, IVP, Adams method, until function of solution is zero, intermediate output (simple driver)
D02EJF	12	ODEs, stiff IVP, BDF method, until function of solution is zero, intermediate output (simple driver)
D02GAF	8	ODEs, boundary value problem, finite difference technique with deferred correction, simple nonlinear problem
D02GBF	8	ODEs, boundary value problem, finite difference technique with deferred correction, general linear problem
D02HAF	8	ODEs, boundary value problem, shooting and matching, boundary values to be determined
D02HBF	8	ODEs, boundary value problem, shooting and matching, general parameters to be determined
D02JAF	8	ODEs, boundary value problem, collocation and least-squares, single nth-order linear equation
D02JBF	8	ODEs, boundary value problem, collocation and least-squares, system of first-order linear equations
D02KAF	7	Second-order Sturm–Liouville problem, regular system, finite range, eigenvalue only
D02KDF	7	Second-order Sturm–Liouville problem, regular/singular system, finite/infinite range, eigenvalue only, user-specified break-points
D02KEF	8	Second-order Sturm–Liouville problem, regular/singular system, finite/infinite range, eigenvalue and eigenfunction, user-specified break-points
D02LAF	13	Second-order ODEs, IVP, Runge–Kutta–Nystrom method
D02LXF	13	Second-order ODEs, IVP, setup for D02LAF
D02LYF	13	Second-order ODEs, IVP, diagnostics for D02LAF
D02LZF	13	Second-order ODEs, IVP, interpolation for D02LAF
D02MVF	14	ODEs, IVP, DASSL method, setup for D02M–N routines
D02MZF	14	ODEs, IVP, interpolation for D02M–N routines, natural interpolant
D02NBF	12	Explicit ODEs, stiff IVP, full Jacobian (comprehensive)
D02NCF	12	Explicit ODEs, stiff IVP, banded Jacobian (comprehensive)
D02NDF	12	Explicit ODEs, stiff IVP, sparse Jacobian (comprehensive)
D02NGF	12	Implicit/algebraic ODEs, stiff IVP, full Jacobian (comprehensive)
D02NHF	12	Implicit/algebraic ODEs, stiff IVP, banded Jacobian (comprehensive)
D02NJF	12	Implicit/algebraic ODEs, stiff IVP, sparse Jacobian (comprehensive)
D02NMF	12	Explicit ODEs, stiff IVP (reverse communication, comprehensive)
D02NNF	12	Implicit/algebraic ODEs, stiff IVP (reverse communication, comprehensive)
D02NRF	12	ODEs, IVP, for use with D02M–N routines, sparse Jacobian, enquiry routine

D02NSF	12	ODEs, IVP, for use with D02M–N routines, full Jacobian, linear algebra set up
D02NTF	12	ODEs, IVP, for use with D02M–N routines, banded Jacobian, linear algebra set up
D02NUF	12	ODEs, IVP, for use with D02M–N routines, sparse Jacobian, linear algebra set up
D02NVF	12	ODEs, IVP, BDF method, setup for D02M–N routines
D02NWF	12	ODEs, IVP, Blend method, setup for D02M–N routines
D02NXF	12	ODEs, IVP, sparse Jacobian, linear algebra diagnostics, for use with D02M–N routines
D02NYF	12	ODEs, IVP, integrator diagnostics, for use with D02M–N routines
D02NZF	12	ODEs, IVP, setup for continuation calls to integrator, for use with D02M–N routines
D02PCF	16	ODEs, IVP, Runge–Kutta method, integration over range with output
D02PDF	16	ODEs, IVP, Runge–Kutta method, integration over one step
D02PVF	16	ODEs, IVP, setup for D02PCF and D02PDF
D02PWF	16	ODEs, IVP, resets end of range for D02PDF
D02PXF	16	ODEs, IVP, interpolation for D02PDF
D02PYF	16	ODEs, IVP, integration diagnostics for D02PCF and D02PDF
D02PZF	16	ODEs, IVP, error assessment diagnostics for D02PCF and D02PDF
D02QFF	13	ODEs, IVP, Adams method with root-finding (forward communication, comprehensive)
D02QGF	13	ODEs, IVP, Adams method with root-finding (reverse communication, comprehensive)
D02QWF	13	ODEs, IVP, setup for D02QFF and D02QGF
D02QXF	13	ODEs, IVP, diagnostics for D02QFF and D02QGF
D02QYF	13	ODEs, IVP, root-finding diagnostics for D02QFF and D02QGF
D02QZF	13	ODEs, IVP, interpolation for D02QFF or D02QGF
D02RAF	8	ODEs, general nonlinear boundary value problem, finite difference technique with deferred correction, continuation facility
D02SAF	8	ODEs, boundary value problem, shooting and matching technique, subject to extra algebraic equations, general parameters to be determined
D02TGF	8	nth-order linear ODEs, boundary value problem, collocation and least-squares
D02TKF	17	ODEs, general nonlinear boundary value problem, collocation technique
D02TVF	17	ODEs, general nonlinear boundary value problem, setup for D02TKF
D02TXF	17	ODEs, general nonlinear boundary value problem, continuation facility for D02TKF
D02TYF	17	ODEs, general nonlinear boundary value problem, interpolation for D02TKF
D02TZF	17	ODEs, general nonlinear boundary value problem, diagnostics for D02TKF
D02XJF	12	ODEs, IVP, interpolation for D02M–N routines, natural interpolant
D02XKF	12	ODEs, IVP, interpolation for D02M–N routines, C_1 interpolant
D02ZAF	12	ODEs, IVP, weighted norm of local error estimate for D02M–N routines