```
---------------------- TURBINE CONTROL -------------------------------------
   0        YCMode      - Yaw control mode {0: none, 1: user-defined from rout
9999.9      TYCOn       - Time to enable active yaw control (s) [unused when Y
   2        PCMode      - Pitch control mode {0: none, 1: user-defined from ro
   0.0      TPCOn       - Time to enable active pitch control (s) [unused when
   3        VSContrl    - Variable-speed control mode {0: none, 1: simple VS,
9999.9      VS_RtGnSp   - Rated generator speed for simple variable-speed gene
9999.9      VS_RtTq     - Rated generator torque/constant generator torque in
9999.9      VS_Rgn2K    - Generator torque constant in Region 2 for simple var
9999.9      VS_SlPc     - Rated generator slip percentage in Region 2 1/2 for
   2        GenModel    - Generator model {1: simple, 2: Thevenin, 3: user-def
True        GenTiStr    - Method to start the generator {T: timed using TimGen
True        GenTiStp    - Method to stop the generator {T: timed using TimGenO
9999.9      SpdGenOn    - Generator speed to turn on the generator for a start
   0.0      TimGenOn    - Time to turn on the generator for a startup (s) [use
9999.9      TimGenOf    - Time to turn off the generator (s) [used only when G
   1        HSSBrMode   - HSS brake model {1: simple, 2: user-defined from rou
9999.9      THSSBrDp    - Time to initiate deployment of the HSS brake (s)
9999.9      TiDynBrk    - Time to initiate deployment of the dynamic generator
9999.9      TTpBrDp(1)  - Time to initiate deployment of tip brake 1 (s)
9999.9      TTpBrDp(2)  - Time to initiate deployment of tip brake 2 (s)
9999.9      TTpBrDp(3)  - Time to initiate deployment of tip brake 3 (s) [unus
9999.9      TBDepISp(1) - Deployment-initiation speed for the tip brake on bla
9999.9      TBDepISp(2) - Deployment-initiation speed for the tip brake on bla
9999.9      TBDepISp(3) - Deployment-initiation speed for the tip brake on bla
9999.9      TYawManS    - Time to start override yaw maneuver and end standard
9999.9      TYawManE    - Time at which override yaw maneuver reaches final ya
   0.0      NacYawF     - Final yaw angle for yaw maneuvers (degrees)
9999.9      TPitManS(1) - Time to start override pitch maneuver for blade 1 an
9999.9      TPitManS(2) - Time to start override pitch maneuver for blade 2 an
9999.9      TPitManS(3) - Time to start override pitch maneuver for blade 3 an
9999.9      TPitManE(1) - Time at which override pitch maneuver for blade 1 re
9999.9      TPitManE(2) - Time at which override pitch maneuver for blade 2 re
9999.9      TPitManE(3) - Time at which override pitch maneuver for blade 3 re
   0.0      BlPitch(1)  - Blade 1 initial pitch (degrees)
   0.0      BlPitch(2)  - Blade 2 initial pitch (degrees)
   0.0      BlPitch(3)  - Blade 3 initial pitch (degrees) [unused for 2 blades
   0.0      BlPitchF(1) - Blade 1 final pitch for pitch maneuvers (degrees)
   0.0      BlPitchF(2) - Blade 2 final pitch for pitch maneuvers (degrees)
   0.0      BlPitchF(3) - Blade 3 final pitch for pitch maneuvers (degrees) [u
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---------------------- ENVIRONMENTAL CONDITIONS -----------------------------
   9.80665  Gravity     - Gravitational acceleration (m/s^2)
---------------------- FEATURE FLAGS ----------------------------------------
True        FlapDOF1    - First flapwise blade mode DOF (flag)
True        FlapDOF2    - Second flapwise blade mode DOF (flag)
True        EdgeDOF     - First edgewise blade mode DOF (flag)
False       TeetDOF     - Rotor-teeter DOF (flag) [unused for 3 blades]
True        DrTrDOF     - Drivetrain rotational-flexibility DOF (flag)
True        GenDOF      - Generator DOF (flag)
True        YawDOF      - Yaw DOF (flag)
True        TwFADOF1    - First fore-aft tower bending-mode DOF (flag)
True        TwFADOF2    - Second fore-aft tower bending-mode DOF (flag)
True        TwSSDOF1    - First side-to-side tower bending-mode DOF (flag)
True        TwSSDOF2    - Second side-to-side tower bending-mode DOF (flag)
True        CompAero    - Compute aerodynamic forces (flag)
False       CompNoise   - Compute aerodynamic noise (flag)
---------------------- INITIAL CONDITIONS -----------------------------------
   0.0      OoPDefl     - Initial out-of-plane blade-tip displacement (meters)
   0.0      IPDefl      - Initial in-plane blade-tip deflection (meters)
   0.0      TeetDefl    - Initial or fixed teeter angle (degrees) [unused for
   0.0      Azimuth     - Initial azimuth angle for blade 1 (degrees)
  12.1      RotSpeed    - Initial or fixed rotor speed (rpm)
   0.0      NacYaw      - Initial or fixed nacelle-yaw angle (degrees)
   0.0      TTDspFA     - Initial fore-aft tower-top displacement (meters)
   0.0      TTDspSS     - Initial side-to-side tower-top displacement (meters)
---------------------- TURBINE CONFIGURATION --------------------------------
  63.0      TipRad      - The distance from the rotor apex to the blade tip (
   1.5      HubRad      - The distance from the rotor apex to the blade root (
   1        PSpnElN     - Number of the innermost blade element which is stil
   0.0      UndSling    - Undersling length [distance from teeter pin to the
   0.0      HubCM       - Distance from rotor apex to hub mass [positive downw
  -5.01910  OverHang    - Distance from yaw axis to rotor apex [3 blades] or t
   1.9      NacCMxn     - Downwind distance from the tower-top to the nacelle
   0.0      NacCMyn     - Lateral  distance from the tower-top to the nacelle
   1.75     NacCMzn     - Vertical distance from the tower-top to the nacelle
  87.6      TowerHt     - Height of tower above ground level [onshore] or MSL
   1.96256  Twr2Shft    - Vertical distance from the tower-top to the rotor sh
   0.0      TwrRBHt     - Tower rigid base height (meters)
  -5.0      ShftTilt    - Rotor shaft tilt angle (degrees)
   0.0      Delta3      - Delta-3 angle for teetering rotors (degrees) [unused
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  -2.5      PreCone(1)  - Blade 1 cone angle (degrees)
  -2.5      PreCone(2)  - Blade 2 cone angle (degrees)
  -2.5      PreCone(3)  - Blade 3 cone angle (degrees) [unused for 2 blades]
   0.0      AzimB1Up    - Azimuth value to use for I/O when blade 1 points up
---------------------- MASS AND INERTIA ----------------------------------------
   0.0      YawBrMass   - Yaw bearing mass (kg)
 240.00E3   NacMass     - Nacelle mass (kg)
  56.78E3   HubMass     - Hub mass (kg)
   0.0      TipMass(1)  - Tip-brake mass, blade 1 (kg)
   0.0      TipMass(2)  - Tip-brake mass, blade 2 (kg)
   0.0      TipMass(3)  - Tip-brake mass, blade 3 (kg) [unused for 2 blades]
2607.89E3   NacYIner    - Nacelle inertia about yaw axis (kg m^2)
 534.116    GenIner     - Generator inertia about HSS (kg m^2)
 115.926E3  HubIner     - Hub inertia about rotor axis [3 blades] or teeter ax
---------------------- DRIVETRAIN ----------------------------------------------
 100.0      GBoxEff     - Gearbox efficiency (%)
  94.4      GenEff      - Generator efficiency [ignored by the Thevenin and us
  97.0      GBRatio     - Gearbox ratio (-)
False       GBRevers    - Gearbox reversal {T: if rotor and generator rotate
  28.1162E3 HSSBrTqF    - Fully deployed HSS-brake torque (N-m)
   0.6      HSSBrDT     - Time for HSS-brake to reach full deployment once in
"Dummy"     DynBrkFi    - File containing a mech-gen-torque vs HSS-speed curve
 867.637E6  DTTorSpr    - Drivetrain torsional spring (N-m/rad)
   6.215E6  DTTorDmp    - Drivetrain torsional damper (N-m/(rad/s))
---------------------- SIMPLE INDUCTION GENERATOR ------------------------------
9999.9      SIG_SlPc    - Rated generator slip percentage (%) [used only when
9999.9      SIG_SySp    - Synchronous (zero-torque) generator speed (rpm) [use
9999.9      SIG_RtTq    - Rated torque (N-m) [used only when VSContrl=0 and Ge
9999.9      SIG_PORt    - Pull-out ratio (Tpullout/Trated) (-) [used only when
---------------------- THEVENIN-EQUIVALENT INDUCTION GENERATOR -----------------
9999.9      TEC_Freq    - Line frequency [50 or 60] (Hz) [used only when VSCon
9998        TEC_NPol    - Number of poles [even integer > 0] (-) [used only wh
9999.9      TEC_SRes    - Stator resistance (ohms) [used only when VSContrl=0
9999.9      TEC_RRes    - Rotor resistance (ohms) [used only when VSContrl=0 a
9999.9      TEC_VLL     - Line-to-line RMS voltage (volts) [used only when VSC
9999.9      TEC_SLR     - Stator leakage reactance (ohms) [used only when VSCo
9999.9      TEC_RLR     - Rotor leakage reactance (ohms) [used only when VSCon
9999.9      TEC_MR      - Magnetizing reactance (ohms) [used only when VSContr
---------------------- PLATFORM ------------------------------------------------
   0        PtfmModel   - Platform model {0: none, 1: onshore, 2: fixed bottom
```

```
"Dummy"     PtfmFile    - Name of file containing platform properties (quoted
---------------------- TOWER -----------------------------------------------
  20        TwrNodes    - Number of tower nodes used for analysis (-)
"..\..\..\..\NREL5MW_Properties\NRELOffshrBsline5MW_Tower_Onshore.dat"
---------------------- NACELLE-YAW -----------------------------------------
9028.32E6   YawSpr      - Nacelle-yaw spring constant (N-m/rad)
  19.16E6   YawDamp     - Nacelle-yaw damping constant (N-m/(rad/s))
   0.0      YawNeut     - Neutral yaw position--yaw spring force is zero at th
---------------------- FURLING ---------------------------------------------
False       Furling     - Read in additional model properties for furling turb
"Dummy"     FurlFile    - Name of file containing furling properties (quoted s
---------------------- ROTOR-TEETER ----------------------------------------
   0        TeetMod     - Rotor-teeter spring/damper model {0: none, 1: standa
   0.0      TeetDmpP    - Rotor-teeter damper position (degrees) [used only fo
   0.0      TeetDmp     - Rotor-teeter damping constant (N-m/(rad/s)) [used on
   0.0      TeetCDmp    - Rotor-teeter rate-independent Coulomb-damping moment
   0.0      TeetSStP    - Rotor-teeter soft-stop position (degrees) [used only
   0.0      TeetHStP    - Rotor-teeter hard-stop position (degrees) [used only
   0.0      TeetSSSp    - Rotor-teeter soft-stop linear-spring constant (N-m/r
   0.0      TeetHSSp    - Rotor-teeter hard-stop linear-spring constant (N-m/r
---------------------- TIP-BRAKE -------------------------------------------
   0.0      TBDrConN    - Tip-brake drag constant during normal operation, Cd*
   0.0      TBDrConD    - Tip-brake drag constant during fully-deployed operat
   0.0      TpBrDT      - Time for tip-brake to reach full deployment once rel
---------------------- BLADE -----------------------------------------------
"..\..\..\..\NREL5MW_Properties\NRELOffshrBsline5MW_Blade.dat"
"..\..\..\..\NREL5MW_Properties\NRELOffshrBsline5MW_Blade.dat"
"..\..\..\..\NREL5MW_Properties\NRELOffshrBsline5MW_Blade.dat"
---------------------- AERODYN ---------------------------------------------
"AeroDyn.ipt"               ADFile      - Name of file containing AeroDyn inp
---------------------- NOISE -----------------------------------------------
"Dummy"     NoiseFile   - Name of file containing aerodynamic noise input para
---------------------- ADAMS -----------------------------------------------
"..\..\..\..\NREL5MW_Properties\NRELOffshrBsline5MW_ADAMSSpecific.dat"
---------------------- LINEARIZATION CONTROL -------------------------------
"..\..\..\..\NREL5MW_Properties\NRELOffshrBsline5MW_Linear.dat"
---------------------- OUTPUT ----------------------------------------------
False        SumPrint    - Print summary data to "<RootName>.fsm" (flag)
True        TabDelim    - Generate a tab-delimited tabular output file. (flag)
"ES10.3E2"  OutFmt      - Format used for tabular output except time.  Result
```

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   30.0      TStart      - Time to begin tabular output (s)
   1         DecFact     - Decimation factor for tabular output {1: output ever
   1.0       SttsTime    - Amount of time between screen status messages (sec)
  -3.09528   NcIMUxn     - Downwind distance from the tower-top to the nacelle
   0.0       NcIMUyn     - Lateral  distance from the tower-top to the nacelle
   2.23336   NcIMUzn     - Vertical distance from the tower-top to the nacelle
   1.912     ShftGagL    - Distance from rotor apex [3 blades] or teeter pin [2
   0         NTwGages    - Number of tower nodes that have strain gages for out
             TwrGagNd    - List of tower nodes that have strain gages [1 to Twr
   3         NBlGages    - Number of blade nodes that have strain gages for out
 5,9,13      BldGagNd    - List of blade nodes that have strain gages [1 to Bla
             OutList     - The next line(s) contains a list of output parameter
"WindVxi,WindVyi,WindVzi"          - Wind-speed components (m/s)
"Azimuth, RotSpeed"                - Rotor azimuth angle (deg) and angular spe
"TSR"                              - Tip speed ratio (-)
"GenSpeed, GenAccel"               - Generator speed (rpm), and generator acce
"LSShftTq"                         - LSS torque (kNm)
"GenTq, GenPwr"                    - Generator torque (kNm) and power (kW)
"TipDxb1, TipDyb1"                 - Blade 1 flapwise and edgewise tip deflect
"TipDxb2, TipDyb2"                 - Blade 2 flapwise and edgewise tip deflect
"TipDxb3, TipDyb3"                 - Blade 3 flapwise and edgewise tip deflect
"TipDxc1, TipDyc1"            - Blade 1 tip out-plane and in-plane defl (m)
"TipDxc2, TipDyc2"            - Blade 2 tip out-plane and in-plane defl (m)
"TipDxc3, TipDyc3"            - Blade 3 tip out-plane and in-plane defl (m)
"BldPitch1"                        - Blade 1 pitch angle (deg)
"BldPitch2"                        - Blade 2 pitch angle (deg)
"BldPitch3"                        - Blade 3 pitch angle (deg)
"YawBrTDxp"                   - Tower-top/yaw bearing fore-aft (translational
"YawBrTDyp"                   - Tower-top/yaw bearing side-to-side (translat
"YawBrTDzp"                   - Tower-top/yaw bearing axial (translational) a
"RootMxb1, RootMyb1, RootMzb1"     - Blade 1 root moments (kNm)
"RootMxb2, RootMyb2, RootMzb2"     - Blade 2 root moments (kNm)
"RootMxb3, RootMyb3, RootMzb3"     - Blade 3 root moments (kNm)
"TwrBsMyt"                      - Tower fore-aft moment.
END of FAST input file (the word "END" must appear in the first 3 columns of t
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