



APPENDIX B

An alphabetic listing of all the data column headings

This section contains an alphabetic listing of column headings for all the data that can be entered on the system and data base pages in the PASHA package.

Each entry in the listing consists of an underlined title, giving the name of the system parameter occurs. For example the entry:

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D-OFF-V : (INDUCTION MOTOR DATA 2)
        : (INDUCTION MOTOR DATA BASE 2)
```

describes the system variable D-OFF-V which can be found on the edit page INDUCTION MOTOR DATA 2 and on the data base page INDUCTION MOTOR DATA BASE 2.

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COMMENT: (AVR DATA BASE 1)
           : (AVR DATA BASE 2)
           : (GENERATOR DATA BASE 1)
           : (GENERATOR DATA BASE 2)
           : (GOVERNOR DATA BASE)
           : (INDUCTION MOTOR DATA BASE 1)
           : (INDUCTION MOTOR DATA BASE 2)
           : (LINE DATA BASE 1 )
           : (TRANSFORMER DATA BASE 1)
           : (TRANSFORMER DATA BASE 2)
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special column for entry of alphanumeric plant information.

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COMP-R : (TRANSFORMER DATA 2)
         : (TRANSFORMER DATA BASE 2)
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Resistance value of line drop compensation, in per-cent, on rating.

COMP-X : (TRANSFORMER DATA 2)
 : (TRANSFORMER DATA BASE 2)

Reactance value of line drop compensation, in per-cent, on rating. Enter a negative value if negative reactance compounding is required.

CTRL-BAR: (AVR DATA 1)
 : (AVR DATA 3)

Alternative position for entering name of busbar controlled by AVR. (See CTRL-BAR on LOAD FLOW CONTROL DATA page.)

CTRL-BAR: (LOAD FLOW CONTROL DATA)

Controlling busbar name.

D-OFF-V : (INDUCTION MOTOR DATA 2)
 : (INDUCTION MOTOR DATA BASE 2)

Motor contactor drop-off voltage in pu.

DA-ST-TC: (GENERATOR DATA 2)
 : (GENERATOR DATA BASE 2)

d-axis subtransient open-circuit time constant in seconds.

DA-ST-X : (GENERATOR DATA 2)
 : (GENERATOR DATA BASE 2)

d-axis subtransient reactance in pu.

DA-TR-TC: (GENERATOR DATA 2)
 : (GENERATOR DATA BASE 2)

d-axis transient open-circuit time constant in seconds.

DA-TR-X : (GENERATOR DATA 2)
 : (GENERATOR DATA BASE 2)

d-axis transient reactance in pu.

DAMP-FAC: (GENERATOR DATA 2)
 : (GENERATOR DATA BASE 2)

Damping factor in pu.

DESCRIPTION: (AVR DATA 3)
 : (GENERATOR DATA 3)
 : (GOVERNOR DATA 3)

: (INDUCTION MOTOR DATA 3)
: (LINE DATA 3)
: (TRANSFORMER DATA 3)

Up to 32 characters may be entered here but are not stored.

DO/PU-T : (INDUCTION MOTOR DATA 2)
: (INDUCTION MOTOR DATA BASE 2)

Contactor drop-off to pick-up time delay in sec.

DX/DTAP : (TRANSFORMER DATA 2)
: (TRANSFORMER DATA BASE 2)

Ratio of change in transformer reactance, to change in tap
e.g. if the transformer reactance decreases by 1 per-cent
for each 2 per-cent increase in tap value then $DX/DTAP = -0.5$

EX-E-MAX: (AVR DATA 2)
: (AVR DATA BASE 2)

Exciter ceiling voltage E_{max} in pu.

EX-E-MIN: (AVR DATA 2)
: (AVR DATA BASE 2)

Exciter minimum voltage E_{min} in pu.

EX-GAIN : (AVR DATA 2)
: (AVR DATA BASE 2)

Exciter gain K_e in pu.

EX-SAT1 : (AVR DATA 2)
: (AVR DATA BASE 2)

Exciter saturation function S_e at 75% of ceiling voltage.

EX-SAT2 : (AVR DATA 2)
: (AVR DATA BASE 2)

Exciter saturation function S_e at ceiling voltage.

EX-TC : (AVR DATA 2)
: (AVR DATA BASE 2)

Exciter time constant T_e in sec.

FAULT TIME: (ANALYSIS PARAMETERS)

Time at which fault currents and MVA are to be calculated.
Applicable only when AC and DC decrements are considered.

The default value is 100 msec. This may be edited here or varied through the FLT TIME option within the faults section.

FB-AMP-TC : (AVR DATA 2)
 : (AVR DATA BASE 2)

Feedback amplifier time constant Td in sec.

FB-GAIN : (AVR DATA 1)
 : (AVR DATA BASE 1)

Feedback gain Kf in pu.

FB-TC : (AVR DATA 1)
 : (AVR DATA BASE 1)

Feedback time constant Tf in sec.

FW-GAIN : (AVR DATA 1)
 : (AVR DATA BASE 1)

Forward gain Ka in pu.

FW-TC : (AVR DATA 1)
 : (AVR DATA BASE 1)

Forward time constant Ta in sec.

G-FLY-TC: (GOVERNOR DATA 1)
 : (GOVERNOR DATA BASE)

Governor flyball time constant Tb in sec.

G-REG : (GOVERNOR DATA 1)
 : (GOVERNOR DATA BASE)

Governor regulation R. Enter as a positive number in per-unit or per-cent.

G-TC1 : (GOVERNOR DATA 1)
 : (GOVERNOR DATA BASE)

Governor control system time constant T1 in sec.

G-TC2 : (GOVERNOR DATA 1)
 : (GOVERNOR DATA BASE)

Governor control system time constant T2 in sec.

G-TC3 : (GOVERNOR DATA 1)
 : (GOVERNOR DATA BASE)

Governor control system time constant T3 in sec.

GEN-MVAR: (GENERATOR DATA 1)
 : (GENERATOR DATA 3)

Generated MVAR. Use negative values for consumed MVAR.
 For equivalent generators enter the total group MVAR.

GEN-MW : (GENERATOR DATA 1)
 : (GENERATOR DATA 3)

Generated MW. Use negative values for synchronous motors.
 For equivalent generators enter the total group MW.

I : (LINE DATA 3)

Branch type identifier, showing that the branch is a simple connection 'C', or a transformer feeder 'T'. Transformer feeders may include up to two cable/line sections, connected in series.

ID: (AVR DATA 1)
 : (AVR DATA 2)
 : (AVR DATA 3)
 : (GENERATOR DATA 1)
 : (GENERATOR DATA 2)
 : (GENERATOR DATA 3)
 : (GOVERNOR DATA 1)
 : (GOVERNOR DATA 3)

Synchronous machine identifier. Any keyboard character may be entered, when required, and is subsequently displayed on the diagrams.

ID: (INDUCTION MOTOR DATA 1)
 : (INDUCTION MOTOR DATA 2)
 : (INDUCTION MOTOR DATA 3)

Induction motor identifier. Any keyboard character may be entered, when required, and is subsequently displayed on the diagrams.

IEEE-MOD: (AVR DATA 2)
 : ((AVR DATA BASE 2)

IEEE model. Enter a blank, 1 or 2.

INERT-C : (GENERATOR DATA 1)

: (GENERATOR DATA BASE 1)
: (INDUCTION MOTOR DATA 2)
: (INDUCTION MOTOR DATA BASE 2)

Inertia constant in kWs/kVA. Defaults to infinity.

IP-F-TC : (AVR DATA 1)
: (AVR DATA BASE 1)

Input filter time constant Tr in sec.

L-OUT-T : (INDUCTION MOTOR DATA 2)
: (INDUCTION MOTOR DATA BASE 2)

Lock-out time in sec.

L-TYPE : (LINE DATA 3)

Enter an appropriate line TYPE number, from those previously entered and stored in the LINE DATA BASE files. May be left blank, if the feeder impedance is negligible.

LENGTH-KM: (LINE DATA 3)

Line/cable route length in km, for the above line/cable.

LOAD-MVAR: (BUSBAR DATA)

Busbar reactive load power in MVAR.

LOAD-MW : (BUSBAR DATA)

Busbar load power in MW.

LOAD FLOW CONVERGENCE ACCURACY: (ANALYSIS PARAMETERS)

The loadflow solution converges very rapidly and, therefor, small values can be used. The default value is 0.001 MVA.

MAG-X : (INDUCTION MOTOR DATA 1)
: (INDUCTION MOTOR DATA BASE 1)

Magnetising reactance in pu, on rating.

MAX MVAR: (LOAD FLOW CONTROL DATA)

Maximum reactive power limit in MVAR.

MAX-T-POW: (GOVERNOR DATA 1)
(GOVERNOR DATA BASE)

Maximum turbine power in MW.

MAX-TAP : (TRANSFORMER DATA 1)
(TRANSFORMER DATA BASE)

Maximum tap position in percent off nominal. Will normally have a positive value (or zero if left blank).

MAX-V-PU : (LOAD FLOW CONTROL DATA)

Maximum busbar voltage limit in pu.

MAXIMUM LOAD FLOW ITERATIONS: (ANALYSIS PARAMETERS)

Usually set to 25, but this is not critical as additional rounds of iterations can be initiated, within the loadflow section, if convergence is not achieved.

MIN-TAP : (TRANSFORMER DATA 1)
(TRANSFORMER DATA BASE 1)

Minimum tap position in percent off nominal. Will normally have a negative value (or zero if left blank).

MIN-MVAR : (LOAD FLOW CONTROL DATA)

Minimum reactive power limit in MVAR.

MIN-V-PU : (LOAD FLOW CONTROL DATA)

Minimum busbar voltage limit in pu.

MVAR-SWI : (BUSBAR DATA 2)

The amount of MVAR load to be switched in or out.

MW-SWITH : (BUSBAR DATA 2)

The amount of MW load to be switched in (+) or out (-).

N.PARAL : (LINE DATA 3)

The number of lines, in parallel, represented by a single line symbol in the network diagram. Defaults to 1 if it is left blank, or if a zero is entered.

N-PARALLEL: (GENERATOR DATA 3)

The number of generators, in parallel, represented by a single generator symbol in the network diagram. Defaults

to 1 if it is left blank, or if a zero is entered.

N-PARALLEL: (GOVERNOR DATA 3)

The number of governors of a generator group, represented by a single generator symbol in the network diagram. Defaults to 1 if it is left blank, or if a zero is entered.

N-PARALLEL: (INDUCTION MOTOR DATA 3)

The number of induction motors, in parallel, represented by a single induction motor symbol in the network diagram. Defaults to 1 if it is left blank, or if a zero is entered.

N-PARALLEL: (LINE DATA 3)
(TRANSFORMER DATA 3)

The number of transformers, in parallel, represented by a single induction motor symbol in the network diagram. Defaults to 1 if it is left blank, or if a zero is entered.

PAR-IDX : (INDUCTION MOTOR DATA 2)
(INDUCTION MOTOR DATA BASE 2)

The parameter index sets the type of rotor impedances used:-

- leave blank if running-stand still values are entered
- Enter 1 if inner-outer cage impedances are entered

PASSWORD : (AVR DATA BASE 1)
(AVR DATA BASE 2)
(GENERATOR DATA BASE 1)
(GENERATOR DATA BASE 2)
(GOVERNOR DATA BASE)
(INDUCTION MOTOR DATA BASE 1)
(INDUCTION MOTOR DATA BASE 2)
(LINE DATA BASE 1)
(TRANSFORMER DATA BASE 1)
(TRANSFORMER DATA BASE 2)

Enter the correct password, but only when required.

PMECH-MW : (INDUCTION MOTOR DATA 1)
(INDUCTION MOTOR DATA 3)

Mechanical power output of motor in MW. For equivalent motors enter the total group power output, in MW.

POTIER-X : (GENERATOR DATA 1)
(GENERATOR DATA BASE 1)

Potier reactance in pu. Required only if SAT-FAC is entered. Defaults to 0.8 x transient reactance value.

PRINT AVR DATA?: (ANALYSIS PARAMETERS)

Enter N to exclude AVR outputs from the information recorded at each print interval during the study. The default is Y and AVR outputs are included.

PRINT BUSBAR VOLTAGES?: (ANALYSIS PARAMETERS)

Enter N to exclude busbar voltages from the information recorded at each print interval during the study. The default is Y and busbar voltages are included.

PRINT GOVERNOR DATA?: (ANALYSIS PARAMETERS)

Enter N to exclude governor outputs from the information recorded at each print interval during the study. The default is Y and governor outputs are included.

PRINT SYSTEM DATA? : (ANALYSIS PARAMETERS)

Enter N to exclude system data from the display (FULL LIST) and lineprinter (PRINT) listings of the results. The default is Y and data are included in the listings.

QA-ST-TC : (GENERATOR DATA 2)
(GENERATOR DATA BASE 2)

q-axis subtransient open-circuit time constant in sec.

QA-ST-X : (GENERATOR DATA 2)
(GENERATOR DATA BASE 2)

q-axis subtransient reactance in pu.

QA-SYN-X : (GENERATOR DATA 2)
(GENERATOR DATA BASE 2)

q-axis synchronous reactance in pu.

QA-TR-TC : (GENERATOR DATA 2)
(GENERATOR DATA BASE 2)

q-axis transient open-circuit time constant in sec.

QA-TR-X : (GENERATOR DATA 2)
(GENERATOR DATA BASE 2)

q-axis transient reactance in pu.

RAT-KV : (GENERATOR DATA BASE 1)

The generator rating in kv.

RAT-KV : (INDUCTION MOTOR DATA BASE 1)

The Induction Motor voltage in kv.

RAT-KV : (LINE DATA BASE 1)

The line or cable voltage in kv.

RAT-MVA : (GENERATOR DATA BASE 1)

The generator rating in MVA.

RAT-MVA : (GOVERNOR DATA BASE)

The turbine rating in MW.

RAT-MVA : (INDUCTION MOTOR DATA BASE 1)

The Induction Motor rating in MVA.

RAT-MVA : (LINE DATA 2)
: (LINE DATA BASE 1)

Circuit rating in MVA. Enter ratings for circuits overload checks are required. An infinite capacity is assumed where a zero entry or no entry is made. Circuits found to be on overload have their power flow indicated by a triple arrow head in the loadflow displays and are listed separately in the FULL LIST output.

RAT-MVA : (TRANSFORMER DATA BASE 1)

The transformer rating in MVA.

RATTING-FAC: (LINE DATA 3)

Enter radding factor for parallel lines or cables.

REAC-PU : (GENERATOR DATA 1)
: (GENERATOR DATA BASE 1)

Positive sequence or d-axis synchronous reactance in pu. For basic fault level calculations enter the appropriate positive sequence impedance. For faults involving ground, zero sequence impedance values must also be entered wherever zero sequence paths exist. To calculate time

varying fault currents and for transient stability enter armature resistance and synchronous reactance in RES-PU and REAC-PU and additional data in GENERATOR DATA 2.

REAC-PU : (TRANSFORMER DATA BASE 1)

Transformer Positive sequence reactance in pu, on rating.

REAC-PU/KM: (LINE DATA 1)
: (LINE DATA BASE 1)

Positive sequence reactance of circuit in pu, on rating.

REFERENCE MACHINE BUSBAR: (ANALYSIS PARAMETERS)

Enter the name of the busbar to which the machine used as reference for angular changes is connected. The default is the slack busbar.

REFERENCE MACHINE ID : (ANALYSIS PARAMETERS)

Enter the identifier number of the machine which will be used as the reference for angles. Defaults to the first machine drawn on the reference machine busbar.

REG-TC : (AVR DATA 2)
: (AVR DATA BASE 2)

Regulator amplifier time constant Tb in sec.

RES-PU : (GENERATOR DATA 1)
: (GENERATOR DATA BASE 1)

Positive sequence or armature resistance in pu, on rating.

RESIS-PU: (TRANSFORMER DATA BASE 1)

Transformer Positive sequence resistance in pu, on rating.

RESIS-PU/KM: (LINE DATA BASE 1)

Positive sequence resistance of circuit in pu, on rating.

RESIST-PU : (LINE DATA 1)

Positive sequence resistance of circuit in pu.

RLY-BW : (TRANSFORMER DATA 2)
: (TRANSFORMER DATA 2)

Bandwidth of voltage sensing relay, in per-cent. Defaults to the tap-step, if no entry is made, or if a value lower than the tap-step is entered.

ROT-R-PU: (INDUCTION MOTOR DATA 1)
 : (INDUCTION MOTOR DATA BASE 1)

Inner cage or running rotor resistance in pu, on rating.

ROT-X-PU: (INDUCTION MOTOR DATA 1)
 : (INDUCTION MOTOR DATA BASE 1)

Inner cage or running rotor reactance in pu, on rating.

S-IN-T1 : (INDUCTION MOTOR DATA 1)

Motor switch-in time SI1 in sec.

S-IN-T2 : (INDUCTION MOTOR DATA 1)

Motor switch-in time SI2 in sec.

S-OUT-T1: (INDUCTION MOTOR DATA 1)

Motor switch-out time SO1 in sec.

S-OUT-T2: (INDUCTION MOTOR DATA 1)

Motor switch-out time SO2 in sec.

SAT-FAC : (GENERATOR DATA 1)
 : (GENERATOR DATA BASE 1)

Saturation factor (the pu value of field current required to generate 1.2 pu V on Overcurrent). Defaults to no saturation.

SLACK BUS: (ANALYSIS PARAMETERS)

Any one of the busbars drawn in the network can be specified as the slack by entering its name here. The default selection of the slack is made as described in the LOADFLOW HELP i.e. the online HELP display.

SLIP-PC : (INDUCTION MOTOR DATA 1)

Normal slip for the motor in percent. There is no need to enter a value as this will be calculated during the initial loadflow iterations.

ST-R-PU : (INDUCTION MOTOR DATA 1)
 : (INDUCTION MOTOR DATA BASE 1)

Stator resistance in pu, on rating.

ST-ROT-R: (INDUCTION MOTOR DATA 2)
 : (INDUCTION MOTOR DATA BASE 2)

Outer cage or standstill rotor resistance in pu, on rating.

ST-ROT-X: (INDUCTION MOTOR DATA 2)
 : (INDUCTION MOTOR DATA BASE 2)

Outer cage or standstill rotor reactance in pu, on rating.

ST-X-PU : (INDUCTION MOTOR DATA 1)
 : (INDUCTION MOTOR DATA BASE 1)

Stator reactance in pu, on rating.

STATE : (GENERATOR DATA 2)
 : (INDUCTION MOTOR DATA 2)

Machine status. Leave blank or enter 0 for normal operation.

For motors enter a -1 to disconnect motor, and allow starting in a transient stability study run or a 1 to run a transient stability with the motor initially switched in, and being switched out at a specified time.

For generators entering any non-zero value will disconnect the machine. Note: machines will be signified as being switched out by having a disconnection symbol displayed on the network diagram.

STATUS : (LINE DATA 2)

Circuit status, used to introduce any switching operations, particularly for transient stability studies. Enter a zero (or leave blank), +1 or -1 to specify one of the following three switching modes:-

0 : normal circuit operation, no switching required.

+1: circuit initially switched in, to be disconnected at time SW-TIM1 and re-connected at time SW-TIM2.

-1: circuit initially disconnected, to be switched in at time SW-TIM1 and disconnected again at time SW-TIM2.

STUDY TIME: (ANALYSIS PARAMETERS)

Enter the overall transient stability study time. The default is 1 second.

SUS-PU/KM : (LINE DATA BASE 1)

Positive sequence shunt susceptance of line circuit in pu, on rating.

SUSC-PU : (LINE DATA 1)

Positive sequence shunt susceptance of line circuit in pu.

SW-TIM1 : (BUSBAR DATA 1)

Time of first switching operation, on the load, in sec.

SW-TIM2 : (BUSBAR DATA 2)

Time of second switching operation, on the load, in sec.

SW-TIME1 : (LINE DATA 2)

Time of first switching operation, on this circuit, in sec.

SW-TIME2 : (LINE DATA 2)

Time of second switching operation, on this circuit, in sec.

SWING ANGLE LIMIT: (ANALYSIS PARAMETERS)

The transient stability study is automatically terminated when the specified swing angle limit is exceeded. The default is 540 degrees.

SYSTEM BASE MVA: (ANALYSIS PARAMETERS)

May be edited to have any appropriate value but users must ensure that adjustments are also made to any impedance values previously entered in the data and based on a different system base MVA. The default value is 100 MVA.

SYSTEM FREQUENCY: (ANALYSIS PARAMETERS)

This is used to define radial frequency. It does not modify the impedance values entered. The default value is 50 Hz.

T-TC1 : (GOVERNOR DATA 1)
: (GOVERNOR DATA BASE)

Turbine time constant T4 in sec.

T-TC2 : (GOVERNOR DATA 1)
: (GOVERNOR DATA BASE)

Turbine time constant T5 in sec.

TAP-START: (TRANSFORMER DATA 1)
: (TRANSFORMER DATA BASE):

Normal tap position, in percent of nominal. Value can be positive, negative or zero (blank).

TAP-STEP: (TRANSFORMER DATA 1)
: (TRANSFORMER DATA BASE)

Tap changer increments in percent of nominal. Will be assigned the minimum value of 0.01 percent if left blank.

TQ-SP-B : (INDUCTION MOTOR DATA 2)
: (INDUCTION MOTOR DATA BASE 2)

Load torque-speed coefficient B.

TQ-SP-C : (INDUCTION MOTOR DATA 2)
: (INDUCTION MOTOR DATA BASE 2)

Load torque-speed squared coefficient C.

TR-TYPE : (LINE DATA 3)

Enter an appropriate transformer TYPE number, from those previously entered and stored in the TRANSFORMER DATA BASE file.

TRANSIENT STABILITY PRINT TIME: (ANALYSIS PARAMETERS)

Enter the time interval at which the machine and system details are to be recorded into the file used for the subsequent display or lineprinter listings of results. Defaults to 40ms. NOTE: Maximum stability step length = printout interval.

TRANSIENT STABILITY STEP LENGTH: (ANALYSIS PARAMETERS)

Steps of the order of 0.005 sec will yield acceptable results. The default value is 0.01 sec. The step is adjusted (halved, doubled etc), depending on the rates of change in the system. NOTE: as the Printout interval is fixed, the step is constrained by:

$$\text{Printout interval} = (2^{**}N) \cdot (\text{step length})$$

TYPE : (AVR DATA 3)
: (GENERATOR DATA 3)
: (GOVERNOR DATA 3)
: (INDUCTION MOTOR DATA 3)

: (TRANSFORMER DATA 3)

Enter an appropriate AVR TYPE number, from those previously entered and stored in the AVR DATA BASE file.

TYPE : (AVR DATA BASE 1)
 : (AVR DATA BASE 2)
 : (GENERATOR DATA BASE 1)
 : (GENERATOR DATA BASE 2)
 : (GOVERNOR DATA BASE)
 : (INDUCTION MOTOR DATA BASE 1)
 : (INDUCTION MOTOR DATA BASE 2)
 : (LINE DATA BASE 1)
 : (TRANSFORMER DATA BASE 1)
 : (TRANSFORMER DATA BASE 1)

An integer number identifying each data base entry.

UDM-TYPE: (AVR DATA 3)
 : (GENERATOR DATA 3)
 : (GOVERNOR DATA 3)
 : (INDUCTION MOTOR DATA 3)
 : (BASBAR DATA)

Enter an ID of User Defined Model of the equipment which is filed previously using (UDEM) facilities.

UN-SPED : (INDUCTION MOTOR DATA 2)
 : (INDUCTION MOTOR DATA BASE 2)

Underspeed setting in pu.

V-MAX : (AVR DATA 1)
 : (AVR DATA BASE 1)

Maximum regulator voltage limit Vmax in pu.

V-MIN : (AVR DATA 1)
 : (AVR DATA BASE 1)

Minimum regulator voltage limit Vmin in pu.

V-NOM-KV: (BUSBAR DATA)

Nominal bus voltage in kv.

V-RATE : (AVR DATA 1)
 : (AVR DATA BASE 1)

Rate of change of regulator voltage in pu V/sec.

VRATIO : (TRANSFORMER DATA 2)

: (TRANSFORMER DATA BASE 2)

Ratio of change of the voltage of transformer to the base voltage selected for the terminals of that transformer.

V-SPEC : (TRANSFORMER DATA 1)

The absolute value specifies the target voltage in pu. The sign determines which busbar will be controlled:-

-A positive value applies control on the receiving busbar.

-A negative value applies control on the sending busbar.

VOLT-PU : (GENERATOR DATA 1)
: (GENERATOR DATA 3)

Machine busbar voltage magnitude in pu. GEN-MW and either VOLT-PU or GEN-MVAR entries are required for loadflow studies. Further details in LOADFLOW HELP information.

WNDG-CON: (TRANSFORMER DATA 2)
: (TRANSFORMER DATA BASE 2)

Transformer winding connections are entered by specifying the winding connection, receiving winding connection, phase shift. Enter D for a delta, Y for a star or X for an earthed star winding and 0 - 11 to specify the phase shift. The following combinations are acceptable:

XX0, YY0, DD0, YX0, YX0, DX1, DY1, XD1, YD1, DX11, DY11, XD11, YD11.

ZSQ-R-PU: (GENERATOR DATA 1)
: (GENERATOR DATA BASE 1)

Zero sequence resistance in pu, on rating.

ZSQ-R-PU: (LINE DATA 1)

Zero sequence resistance of circuit in pu.

ZSQ-X-PU: (GENERATOR DATA 1)
: (GENERATOR DATA BASE 1)

Zero sequence reactance in pu. For basic fault level calculations enter the appropriate positive sequence

impedance. For faults involving ground, zero sequence impedance values must also be entered wherever zero sequence paths exist.

ZSQ-X-PU: (LINE DATA 1)

Zero sequence reactance of circuit in pu.

ZSQR-PU : (TRANSFORMER DATA BASE 1)

Transformer Zero sequence resistance in pu, on rating.

ZSQR-PU/KM: (LINE DATA BASE 1)

Zero sequence resistance of circuit in pu, on rating.

ZSQX-PU : (TRANSFORMER DATA BASE 1)

Transformer Zero sequence reactance in pu, on rating.

ZSQX-PU/KM: (LINE DATA BASE 1)

Zero sequence reactance of circuit in pu, on rating.

